

SERVICE MANUAL

marantz

model 3650

Stereo Control Console



MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O. Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EUROPE

Superscope Europe, S.A.
Avenue Leopold III, 2
7120 Perennes-Lez-Binche
Belgium

Marantz France
Rue Louis Armand 9
92600 Asnieres
Hauts-de-Seine
France

Marantz Audio U.K. Ltd.
London Road, 203
Staines
Middlesex
England

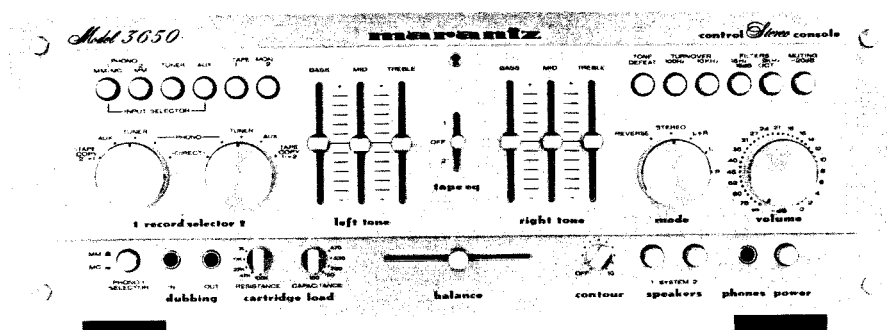
Superscope GmbH
Max-Planck-Strasse 22
D-6072 Dreieich 1
West Germany

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

marantz
We sound better.

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1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 3650 Stereo Control Console. Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation. The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

2. P.W. BOARD

As can be seen from the circuit diagram, the chassis of Model 3650 consists of following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. **Phono Amp** mounted on P.W.B. P400
2. **Power Supply** mounted on P.W.B. P800
3. **Pre Amp** mounted on P.W.B. PE00
4. **Volume Buffer** mounted on P.W.B. PG00
5. **Selector Switch** mounted on P.W.B. PJ00
6. **Tone VR** mounted on P.W.B. PF00
7. **Tone EQ** mounted on P.W.B. PK00
8. **Tone VR Connector** mounted on P.W.B. PF01
9. **Cartridge Load** mounted on P.W.B. PL00
10. **Loudness** mounted on P.W.B. P600
11. **MC Amp** mounted on P.W.B. PM01
12. **RCA PIN** mounted on P.W.B. PV00
13. **Speaker Switch** mounted on P.W.B. PW00

3. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model 3650 Stereo Control Console.

Item	Manufacturer and Model No.	Use
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700B	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1-10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B - 10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600 ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup

4. ALIGNMENT PROCEDURES

- 1. Set the VOLUME control at maximum, and also BASS, MID TREBLE and BALANCE Controls at mechanical center position.
 - 2. Connect 47 kΩ dummy load resistor to each R and L channel on PRE OUT Jacks of the unit.
- ★ **ADJUSTING POINT:** Adjust voltages across J814 and the chassis to +32 V and across J810 and the chassis to -32 V using R810.

5. VOLTAGE CONVERSION

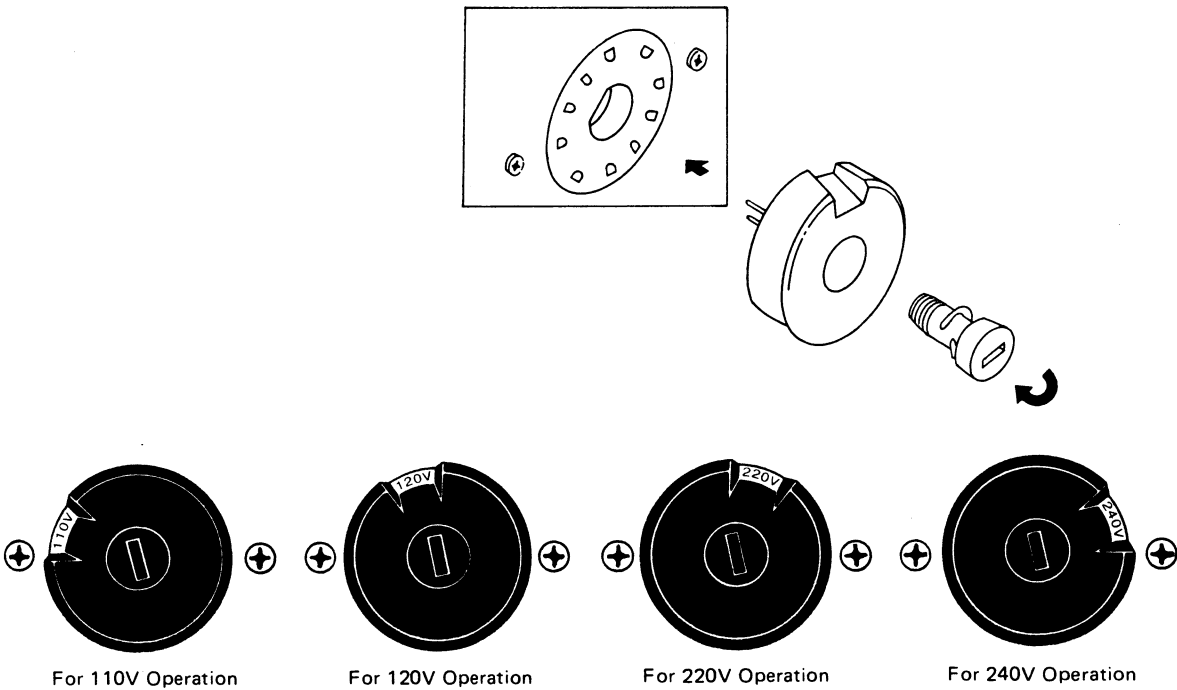
● EUROPEAN MODEL ONLY

This Model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240 V AC 50/60 Hz.
To convert the unit to the required voltage, set the plug as illustrated so that you can adjust the voltage as required.

ITEM	SIGNAL APPLICATION	INDICATOR CONNECTION
CHECK OF THE TECHNICAL SPEC.	PHONO, AUX, TAPE	TAPE OUT, PRE OUT

CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

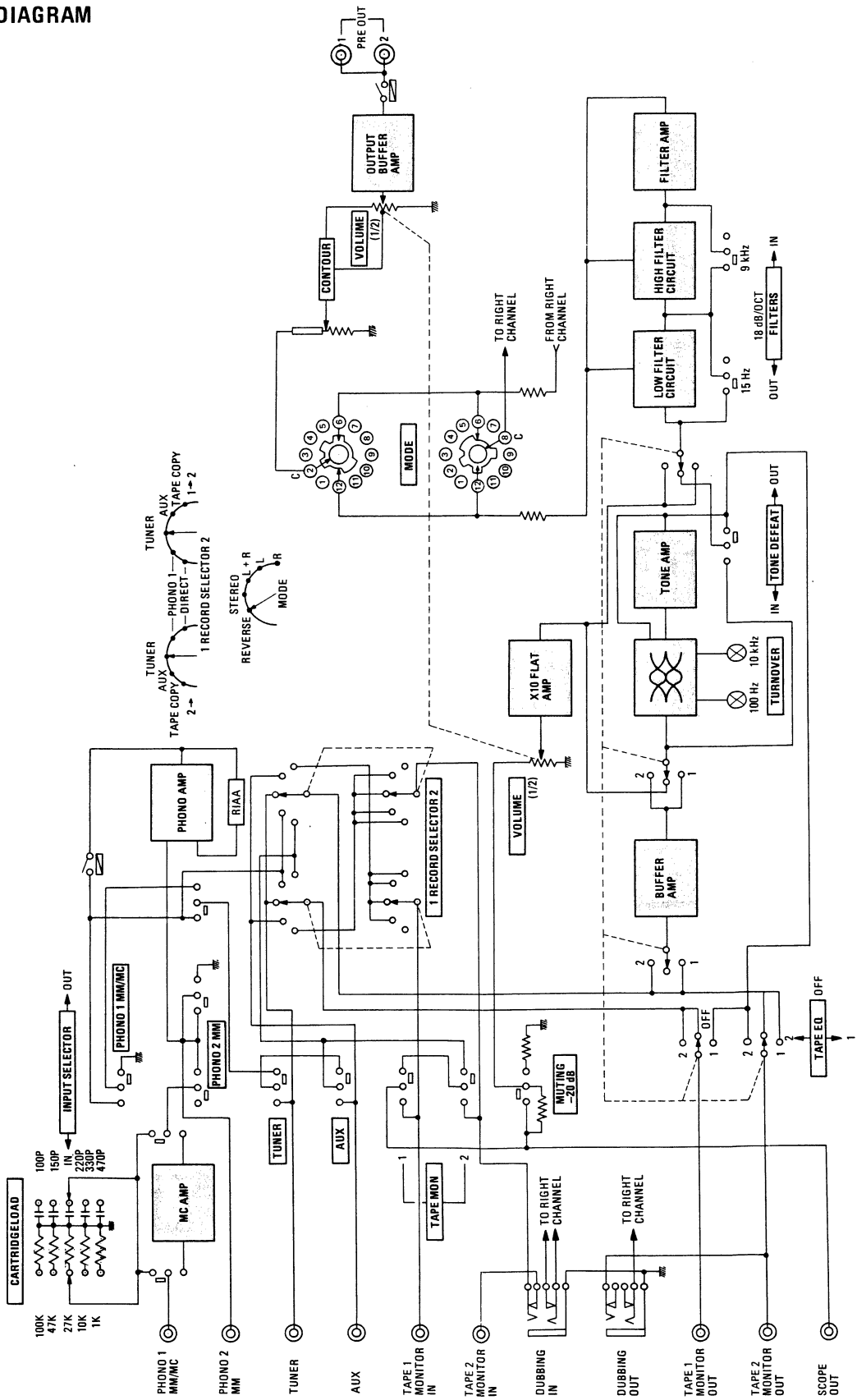
Figure 1. Voltage Conversion Chart



Removal Procedure of P.W. Boards

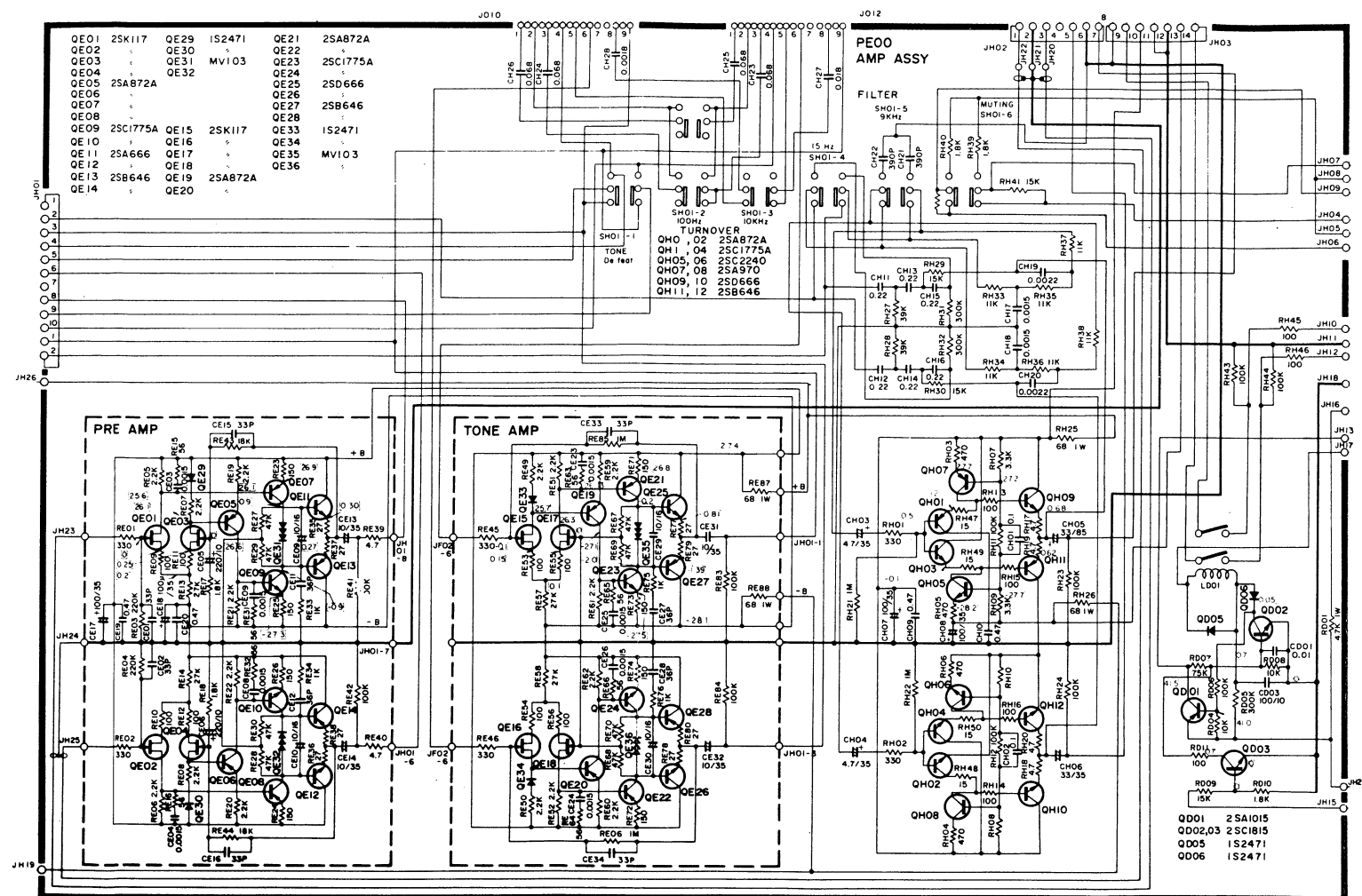
- 1. Remove the screw 1 (002C) and screw 2 (003C). Remove the Upper cover
- 2. Remove the screw 3 (011C). Remove the bottom cover.
- 3. Remove the screw 4 (101F). Remove the front cover (100F).
- 4. Remove the controls 1 (016B), 2 (017B), 3 (019B), 4 (020B), 5 (022B) and 6 (023B), and remove the screw 5 (021B), nut 1 (020F) and bolt 1 (025B). Remove the escutcheon.
- 5. Remove the screws 6 (003F), 7 (005F) and 8 (034F). Then the board will be drawn out toward you.

6. BLOCK DIAGRAM

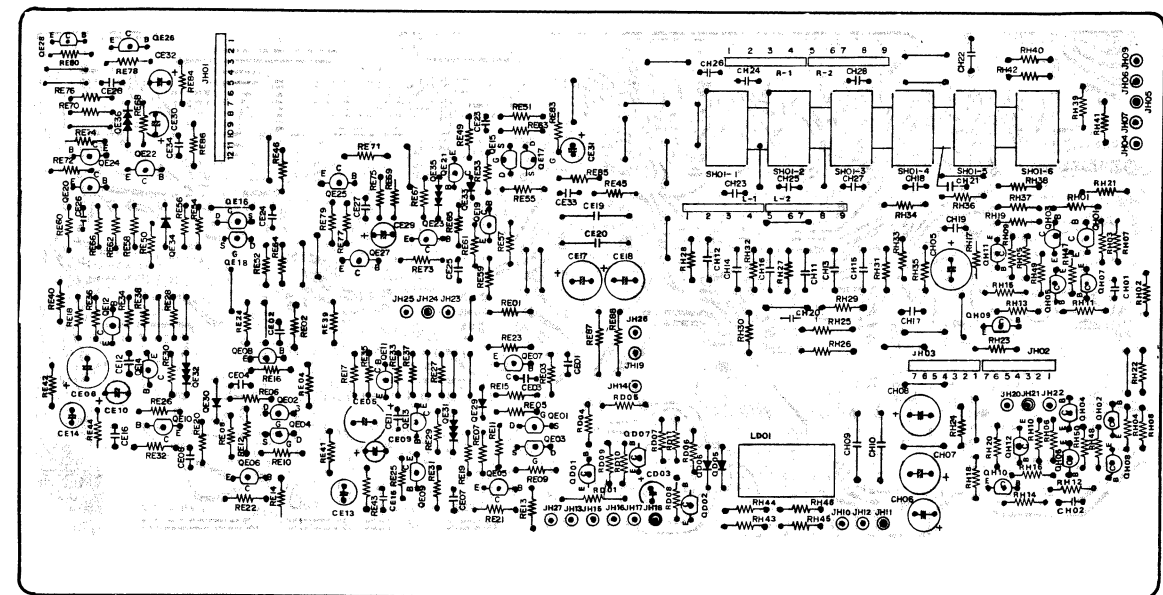
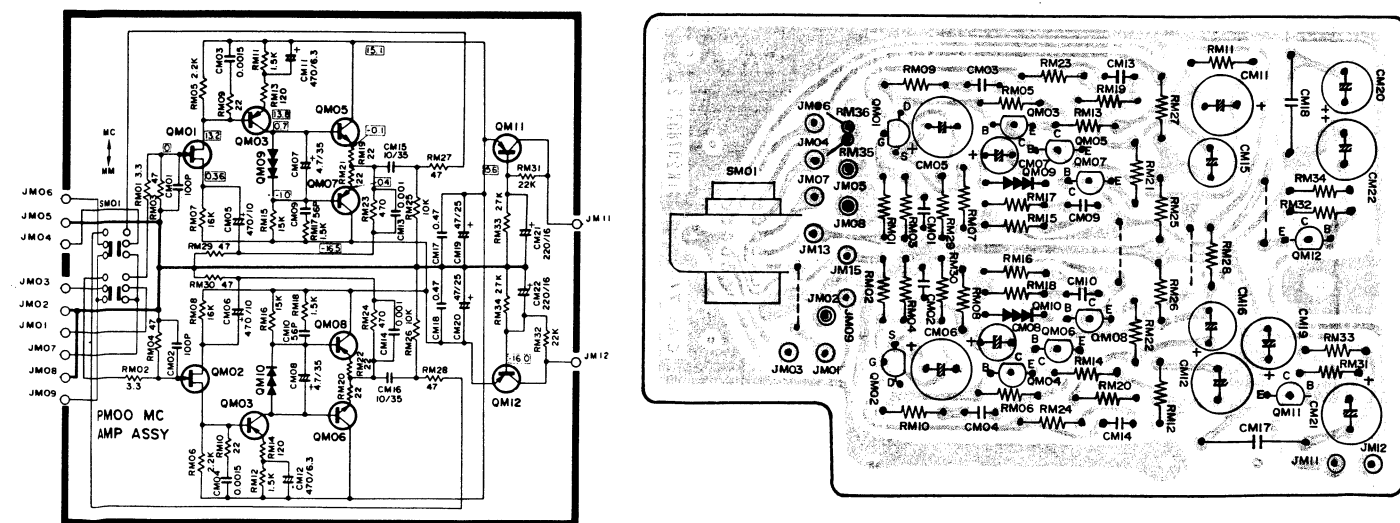


7. DIAGRAM AND COMPONENT LOCATIONS

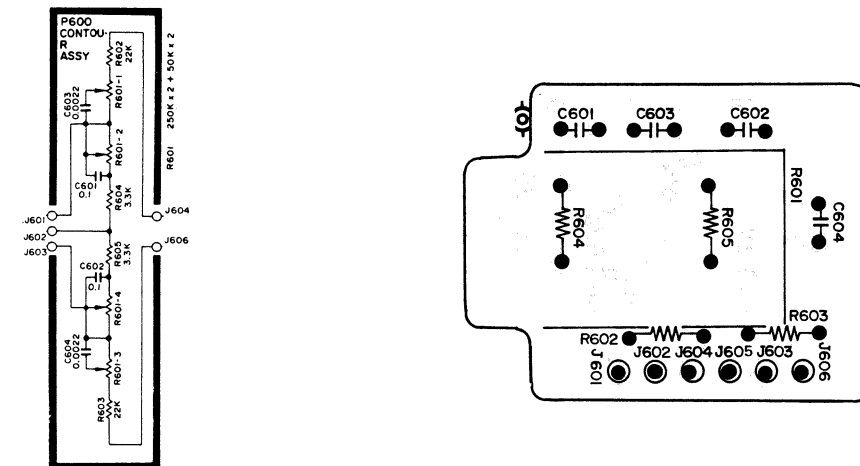
7.1 Pre Amp Assembly (PE00) Schematic Diagram and Component Locations



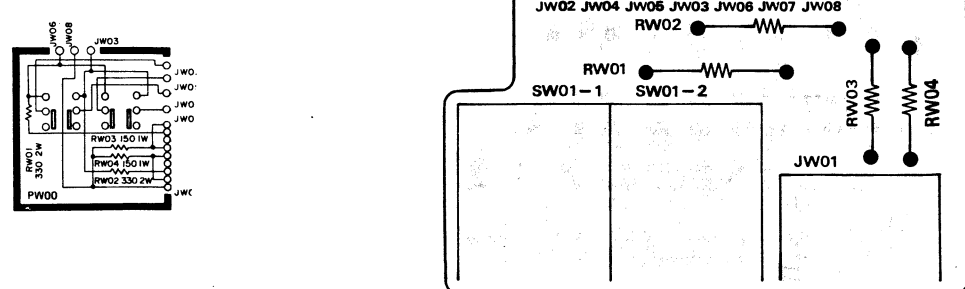
7.2 Mic Amp Assembly (PM00) Schematic Diagram and Component Locations



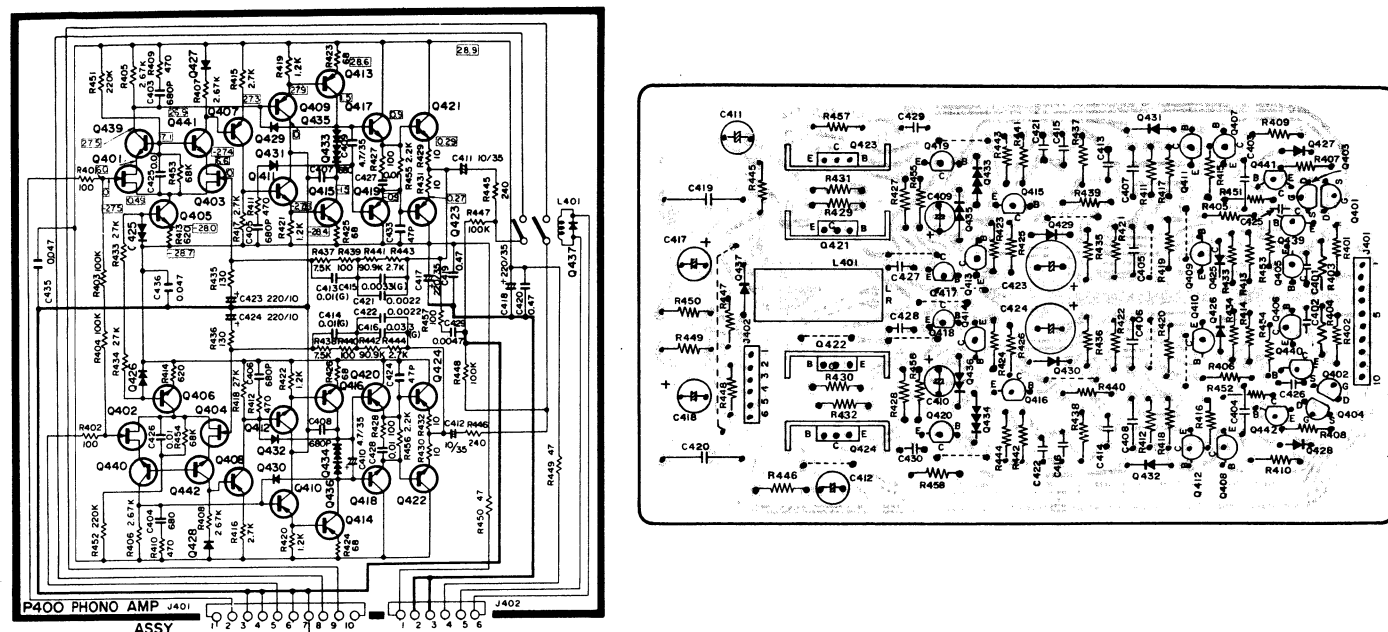
7.3 Contour Assembly (P600) Schematic Diagram and Component Locations



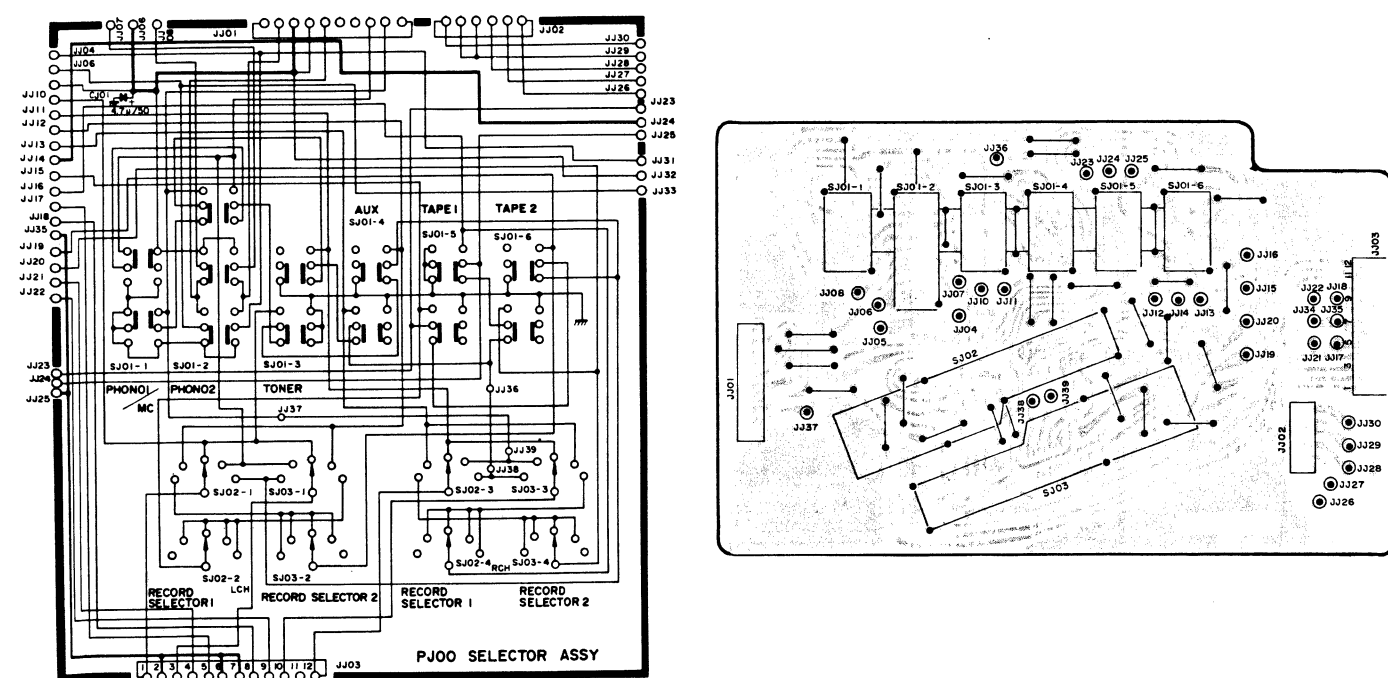
7.4 Speaker Switch Assembly (PW00) Schematic Diagram and Component Locations



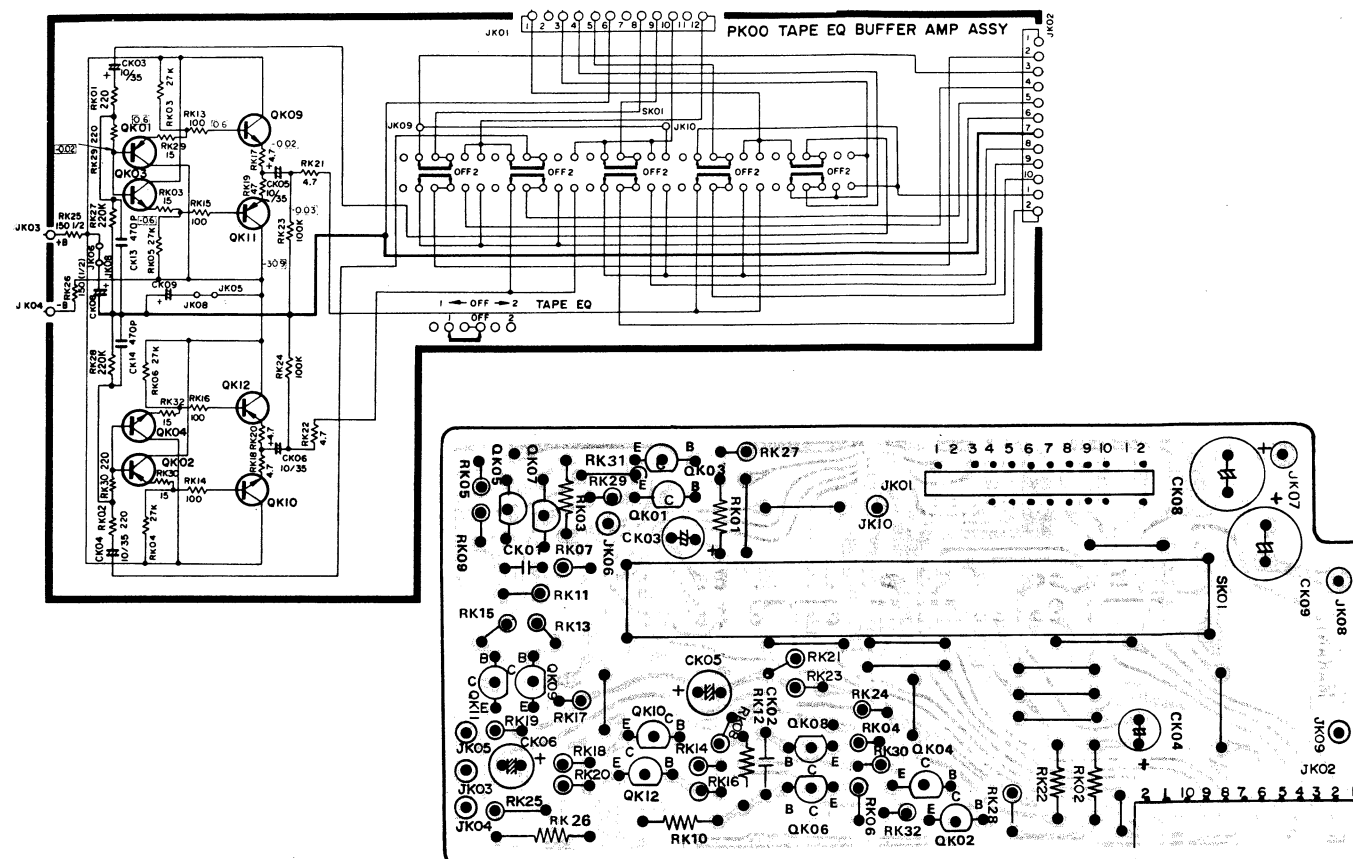
7.5 Phono Amp Assembly (P400) Schematic Diagram and Component Locations



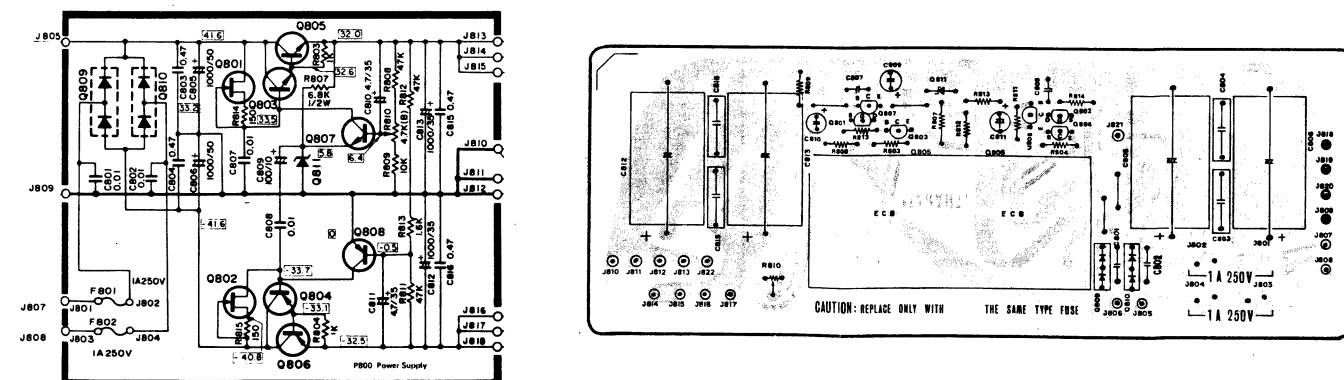
7.6 Selector Assembly (PJ00) Schematic Diagram and Component Locations



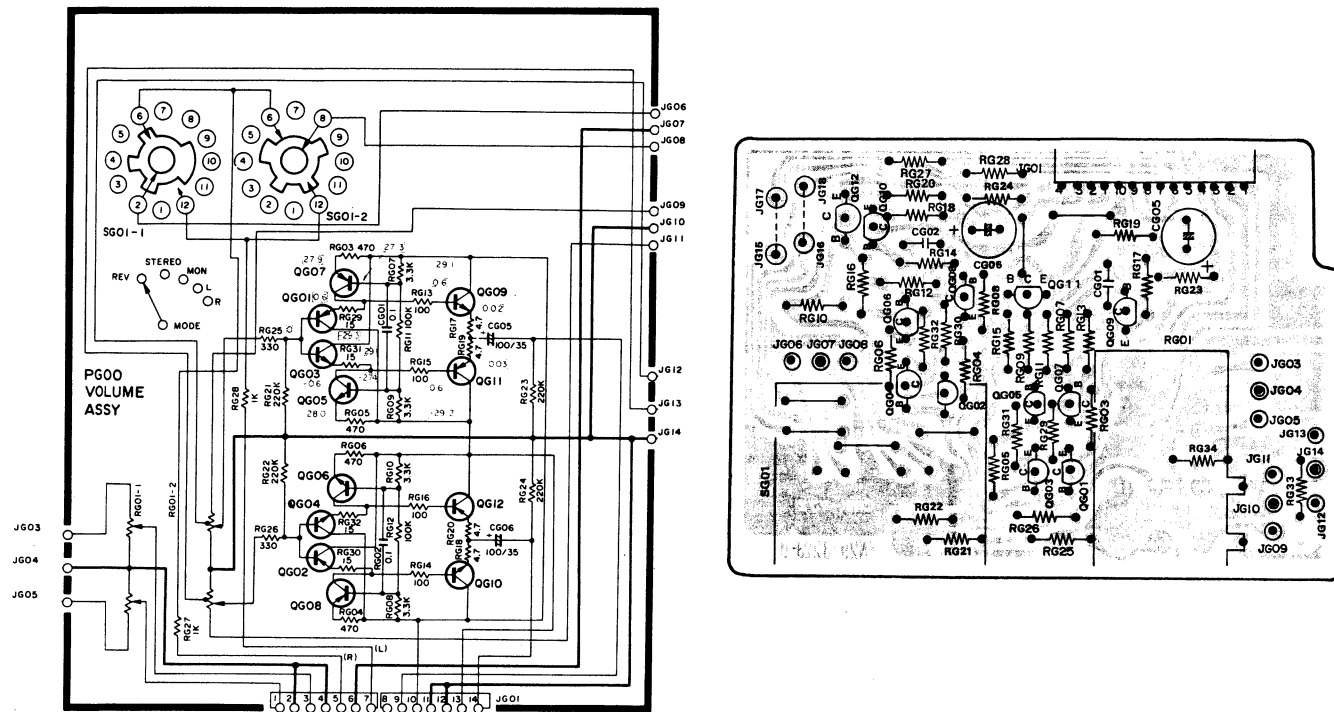
7.7 Tape EQ Buffer Amp Assembly (PK00) Schematic Diagram and Component Locations



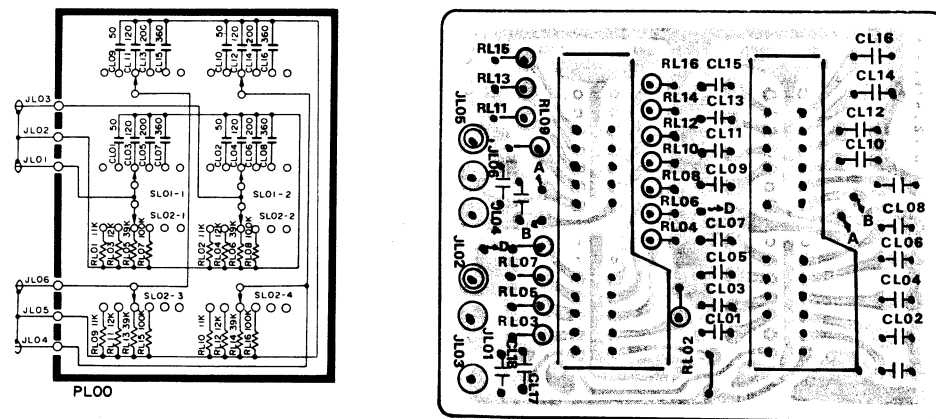
7.8 Power Supply Assembly (P800) Schematic Diagram and Component Locations



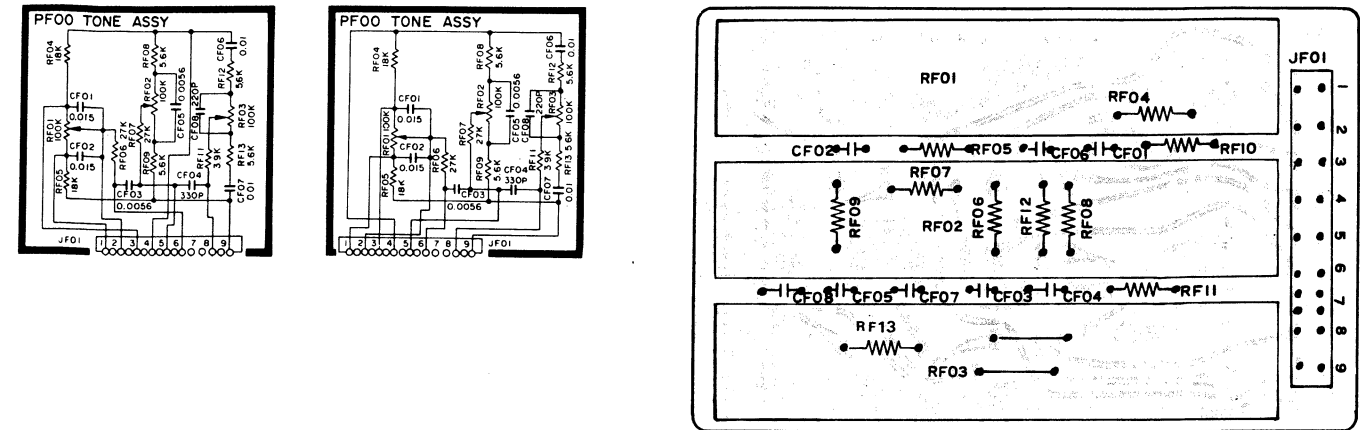
7.9 Volume Assembly (PG00) Schematic Diagram and Component Locations



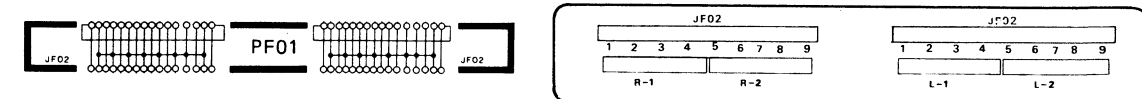
7.10 Cartridge Load Assembly (PL00) Schematic Diagram and Component Locations



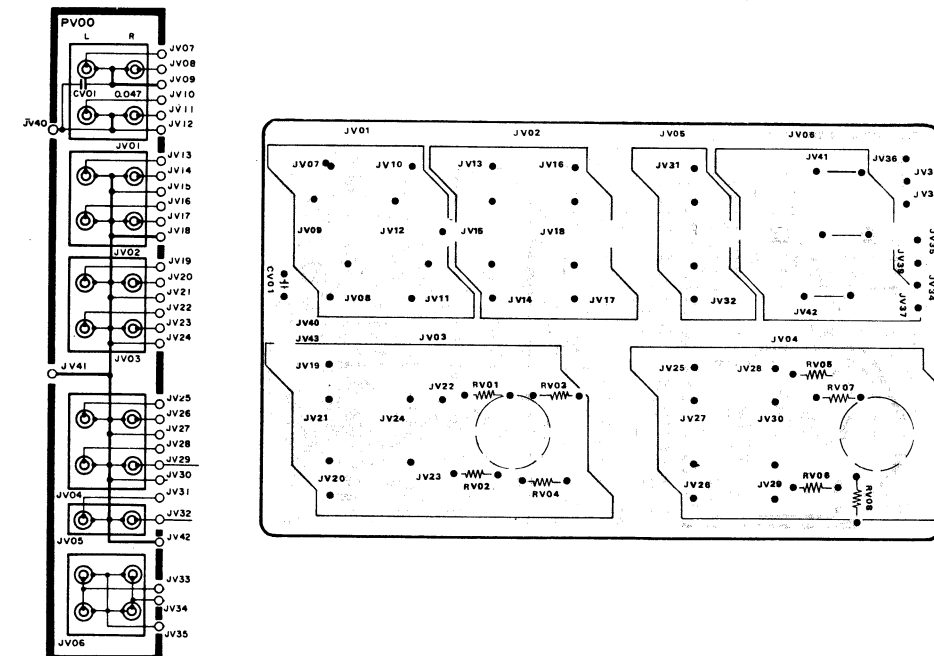
7.11 Tone VR Assembly (PF00) Schematic Diagram and Component Locations



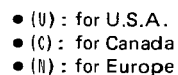
7.12 Tone VR Assembly (PF01) Schematic Diagram and Component Locations



7.13 Rear Pannel Assembly (PV00) Schematic Diagram and Component Locations



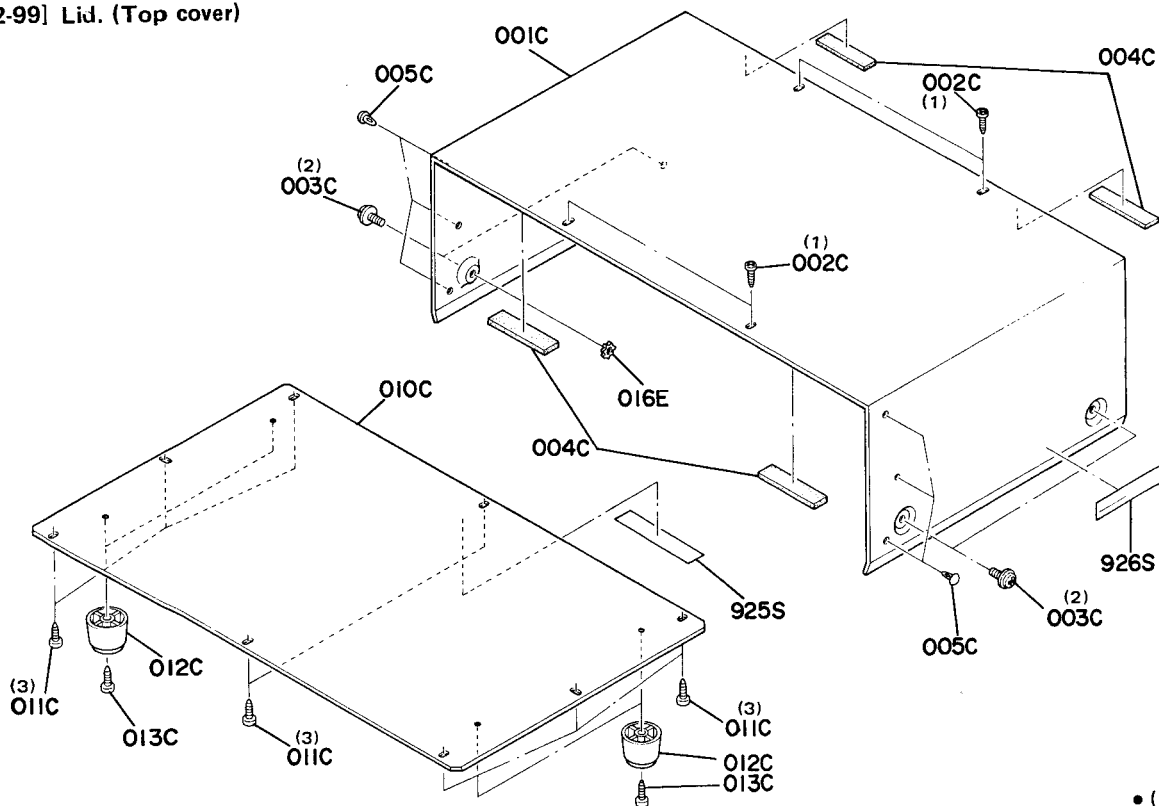
- [C01-99] Front Panel



REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
016B	1	1	1	2970154010	Knob
017B	6	6	6	2970154020	Knob
019B	3	3	3	2978154030	Knob
020B	1	1	1	2965154010	Knob
021B	2	2	2	51690306Q9	Socket Screw, HP 3 x 6
022B	3	3	3	2978154050	Knob
023B	1	1	1	2978154020	Knob
025B	4	4	4	52017069J0	H. Head Bolt
020F	2	2	2	53118179A0	Hexagon Nut



• [C02-99] Lid. (Top cover)

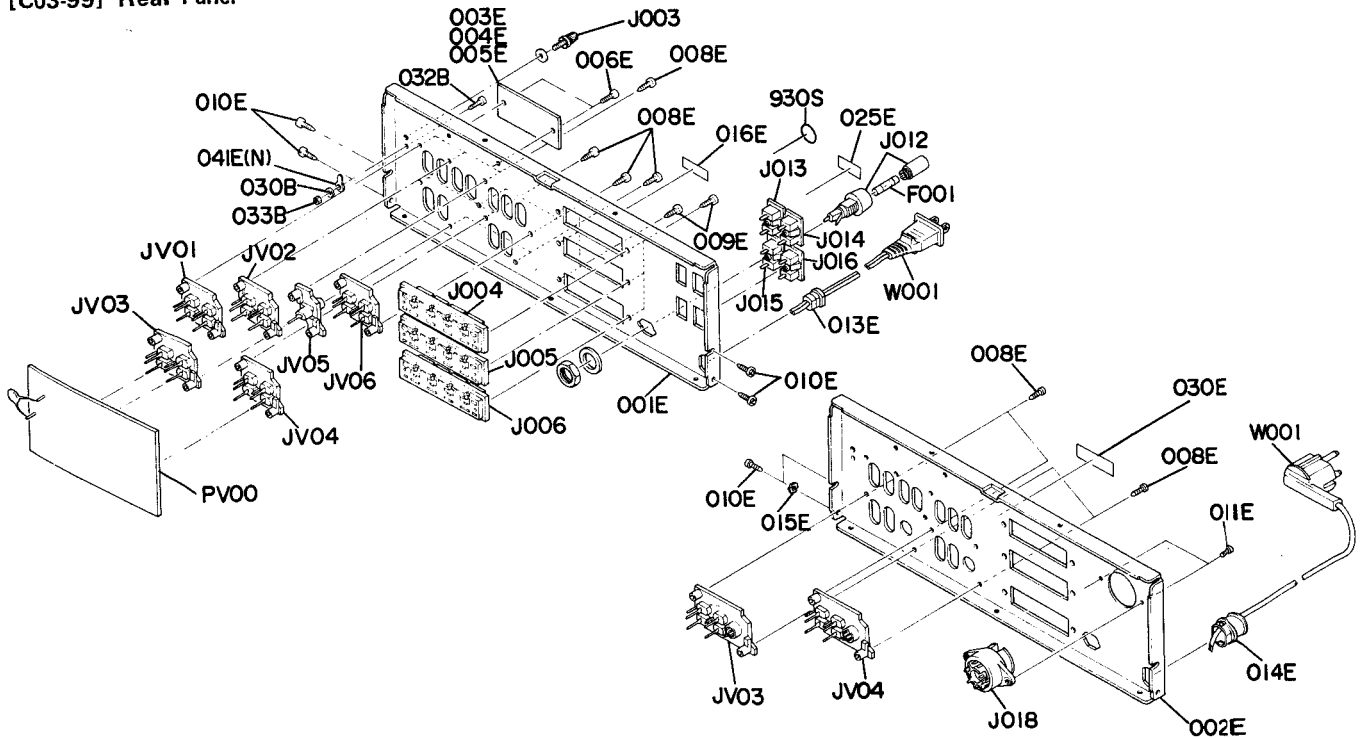


- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
001C	1	1	1	2978257110	Lid, Top Cover
002C	4	4	4	51280306U0	B.H. Tapped Screw B3 x 6
003C	4	4	4	51480406S9	F. Washer Screw F4 x 6
004C	4	4	4	2965118010	Spacer
005C	6	6	6	2991259010	Bushing
010C	1	1	1	2978257020	Lid, Bottom Cover
011C	8	8	8	51280408U0	B.H. Tapped Screw B4 x 8
012C	4	4	4	2932057010	Leg
013C	4	4	4	51570410S0	P. TAPT. Screw P4 x 10

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
016E			1	54050400R0	T.L. Washer OR
925S	1		1	2578861010	Label
925S		1		2911861110	Label
926S		1		2911861140	Label
926S	1		1	2932861010	Label

• [C03-99] Rear Panel

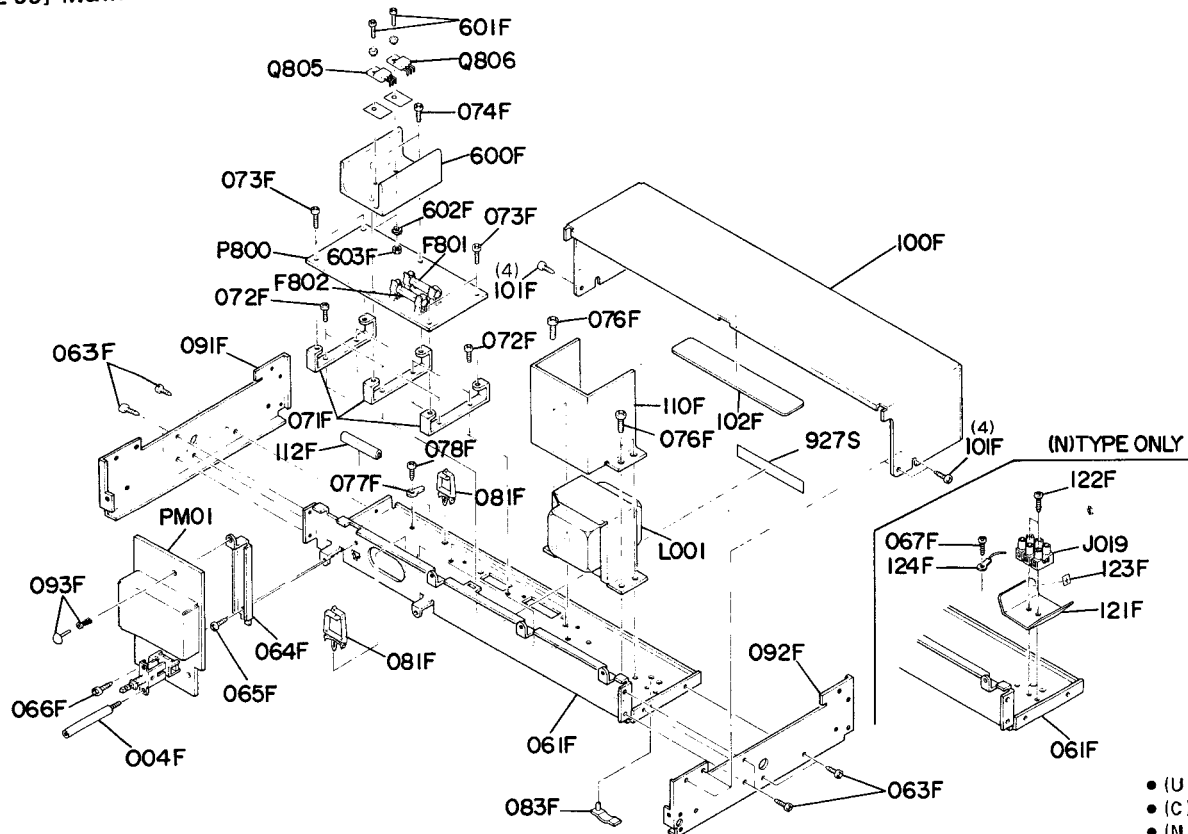


• (U): for U.S.A.
• (C): for Canada
• (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
O01E	1	1		2978160010	Bracket, Rear Panel
O02E			1	2978160050	Bracket, Rear Panel
O03E	1			2978265010	Indicator
O04E		1		2978265020	Indicator
O05E			1	2978265050	Indicator
O06E	2	2	2	51760306B0	OS Tapped Screw 3 x 6
O08E	10	10	12	51280308U0	B.H. Tapped Screw B3 x 8
O09E	6	6	6	51280308U0	B.H. Tapped Screw B3 x 8
O10E	4	4	4	51280308U0	B.H. Tapped Screw B3 x 8
O11E			2	51100308S9	B.H.M. Screw B3 x 8
O13E	1	1		1455259070	Bushing
O14E			1	2286259110	Bushing
O15E			1	54050300R0	T.L. Washer OR
O16E		1		2214861010	Label
O25E		1		2911861290	Label
O30E			1	2978861010	Label
O41E			1	2211123110	Contactor
O30B	1	1	1	54040302N0	Spring Washer
O32B	1	1	1	51100308B9	B.H.M. Screw B3 x 8
O33B	1	1	1	53110303E9	Hexagon Nut
F001	1	1		FS10100080	Fuse, 1A 250V
F001			1	FS10050800	Fuse, 500mA 250V
930S			1	2457861040	Label
930S	1			9511101040	Label

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
J003	1	1	1	YL03010240	Terminal, Ground
J004	1	1	1	YT03040160	Terminal, Speaker
J005	1	1	1	YT03040160	Terminal, Speaker
J006	1	1	1	YT03040160	Terminal, Speaker
J012	1	1		YJ08000230	Jack, Fuse Holder
J012			1	YJ08000220	Jack, Fuse Holder
J013	1	1		YJ04000560	Jack, AC Outlet
J014	1	1		YJ04000560	Jack, AC Outlet
J015	1	1		YJ04000560	Jack, AC Outlet
J016	1	1		YJ04000560	Jack, AC Outlet
J018			1	BY03110010	Plug, Voltage Selector
W001	1	1		YC02000160	A.C. Power Cord
W001			1	YC01900030	A.C. Power Cord
PV00	1	1	1	YF29780020	P.W. Board, RCA Pin
			1	ZZ29780020	P.W. Board Assembly
			1	ZZ29788020	P.W. Board Assembly
JV01	1	1	1	YT02040270	Terminal
JV02	1	1	1	YT02040150	Terminal
JV03	1	1		YT02040150	Terminal
JV03			1	BY01050060	Jack
JV04	1	1		YT02040150	Terminal
JV04			1	BY01050060	Jack
JV05	1	1	1	YT02020150	Terminal
JV06	1	1	1	YT02040150	Terminal

• [P02-99] Main Chassis and Other Parts

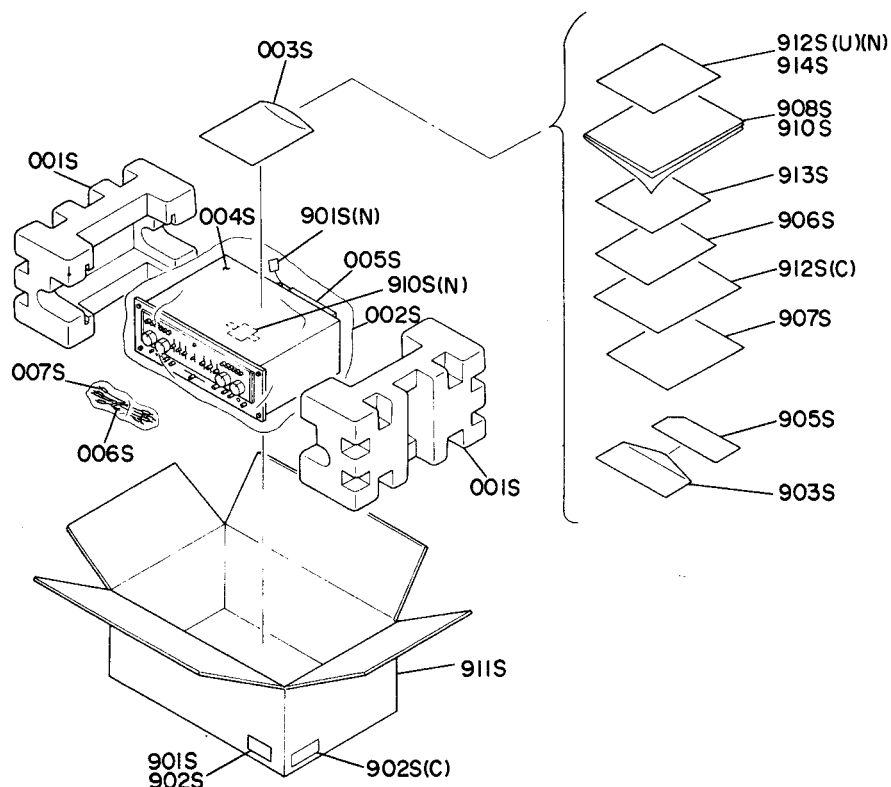


• (U): for U.S.A.
• (C): for Canada
• (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
004F	1	1	1	2978101050	Support
061F	1	1	1	2978105010	Chassis, Main
063F	8	8	8	51280308B0	B.H. Tapped Screw B3 x 8
064F	1	1	1	2978104050	Retainer
065F	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
067F	1	1	1	51280308B0	B.H. Tapped Screw B3 x 8
071F	3	3	3	2856160030	Bracket
072F	6	6	6	51280306B0	B.H. Tapped Screw B3 x 6
073F	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
074F	2	2	2	51280310B0	B.H. Tapped Screw B3 x 10
076F	4	4	4	51280410B0	B.H. Tapped Screw B4 x 10
077F	1	1	1	62030049W0	Lug
078F	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
081F	1	1	1	2886005010	Clamper
082F	1	1	1	2886005020	Clamper
091F	1	1	1	2978160030	Bracket
092F	1	1	1	2978160040	Bracket
093F	1	1	1	2276005050	Clamper
100F	1	1	1	2978053010	Cover
101F	4	4	4	51280306U0	B.H. Tapped Screw B3 x 6
066F	1	1	1	51280308B0	B.H. Tapped Screw B3 x 8
083F	1	1	1	2978005010	Clamper

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
102F	1	1	1	2978120010	Insulator
110F	1	1	1	2978109060	Shield
112F	1	1	1	4640259010	Bushing
121F	1	1	1	3953120030	Insulator
122F	2	2	2	51280314B0	B.H. Tapped Screw B3 x 14
123F	1	1	1	2882861020	Label
124F	1	1	1	62030049W0	Lug
600F	1	1	1	2978267050	Heatsink
601F	2	2	2	51100308E9	B.H.M. Screw B3 x 8
602F	2	2	2	54050300R0	T.L. Washer OR
603F	2	2	2	53110303E9	Hexagon Nut
927S	1	1	1	2205861010	Label
927S	1	1	1	2205861110	Label
J019	1	1	1	YL09030010	Terminal, (3P)
L001	1	1	1	TS16616010	Power Transformer
L001	1	1	1	TS16616020	Power Transformer

• [H01-99] Packing Materials



- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
001S	2	2	2	2970809010	Cushion
002S	1	1		9090909040	Polyethy Sheet
002S			1	9014335330	Polyethy Bag
003S	1	1	1	9013025010	Polyethy Bag
004S	1	1	1	2918107160	Sheet
005S	1	1	1	2864804010	Sleeve
006S	1	1	1	ZD01500160	Connective Cord
007S	1	1	1	9011325010	Polyethy Bag
901S	3			9526019010	Serial No. Card
901S		3		9526019020	Serial No. Card
901S			1	9560000040	Hang Tag
902S		2		9510901020	Label
902S			3	9526019060	Serial No. Card
903S		1		2918813010	Envelope
903S			1	2818813010	Envelope
905S		1	1	9630000180	Guarantee Card
906S		1		9650000050	S. Station Card
907S	1			2818854020	Guarantee Card

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
907S			1	2818854040	Guarantee Card
908S			1	2978851310	Instructions
910S			1	2731821010	Silicagel
910S	1			2978851010	Instructions
910S		1		2978851310	Instructions
911S	1		1	2978801010	Packing Case
911S		1		2978801150	Packing Case
912S	1			2978851020	Instructions
912S		1		2886851100	Instructions
912S			1	2978851030	Instructions
913S	1			2225813010	Envelope
914S		1		2978851050	Instructions

9. ELECTRICAL PARTS LIST

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
P400	1	1	1	YG29780020 ZZ29781010	P400-PHONO AMP. CIRCUIT BOARD P.W. Board, Phono Amp. P.W. Board Assembly
					P400-CAPACITORS
C403	1	1	1	DF55681090	Film 680pF ±5%
C404	1	1	1	DF55681090	Film 680pF ±5%
C405	1	1	1	DF55681090	Film 680pF ±5%
C406	1	1	1	DF55681090	Film 680pF ±5%
C407	1	1	1	DF55681090	Film 680pF ±5%
C408	1	1	1	DF55681090	Film 680pF ±5%
C409	1	1	1	EA47503590	Elect 4.7μF 35V
C410	1	1	1	EA47503590	Elect 4.7μF 35V
C411	1	1	1	EQ10603510	Elect 10μF 35V
C412	1	1	1	EQ10603510	Elect 10μF 35V
C413	1	1	1	DF74103010	Film 0.01μF ±2%
C414	1	1	1	DF74103010	Film 0.01μF ±2%
C415	1	1	1	DF74333010	Film 0.033μF ±2%
C416	1	1	1	DF74333010	Film 0.033μF ±2%
C417	1	1	1	EA22703590	Elect 220μF 35V
C418	1	1	1	EA22703590	Elect 220μF 35V
C419	1	1	1	DF17474510	Film 0.47μF ±20% 250V
C420	1	1	1	DF17474510	Film 0.47μF ±20% 250V
C421	1	1	1	DF15222300	Film 0.0022μF ±5%
C422	1	1	1	DF15222300	Film 0.0022μF ±5%
C423	1	1	1	EA22701090	Elect 220μF 10V
C424	1	1	1	EA22701090	Elect 220μF 10V
C425	1	1	1	DF15103300	Film 0.01μF ±5%
C426	1	1	1	DF15103300	Film 0.01μF ±5%
C427	1	1	1	DF15103300	Film 0.01μF ±5%
C428	1	1	1	DF15103300	Film 0.01μF ±5%
C431	1	1	1	DF15472300	Film 0.0047μF ±5%
C432	1	1	1	DF15472300	Film 0.0047μF ±5%
C433	1	1	1	DD15470300	Ceramic 47pF ±5%
C434	1	1	1	DD15470300	Ceramic 47pF ±5%
C435	1	1	1	DD15470300	Ceramic 47pF ±5%
C436	1	1	1	DD15470300	Ceramic 47pF ±5%
C437	1	1	1	DK18473310	Ceramic 0.047μF +100% -0
C438	1	1	1	DK18473310	Ceramic 0.047μF +100% -0
					P400-RESISTORS (All Resistors are ±5% and ¼W)
R401	1	1	1	GD05101140	100Ω
R402	1	1	1	GD05101140	100Ω
R403	1	1	1	GD05104140	100KΩ
R404	1	1	1	GD05104140	100KΩ
R405	1	1	1	GM21426710	2.67KΩ ±2%
R406	1	1	1	GM21426710	2.67KΩ ±2%
R407	1	1	1	GM21426710	2.67KΩ ±2%
R408	1	1	1	GM21426710	2.67KΩ ±2%
R409	1	1	1	GD05471140	470Ω
R410	1	1	1	GD05471140	470Ω
R411	1	1	1	GD05471140	470Ω
R412	1	1	1	GD05471140	470Ω
R413	1	1	1	GD05621140	620Ω
R414	1	1	1	GD05621140	620Ω
R415	1	1	1	GD05272140	2.7KΩ
R416	1	1	1	GD05272140	2.7KΩ
R417	1	1	1	GD05272140	2.7KΩ
R418	1	1	1	GD05272140	2.7KΩ
R419	1	1	1	GD05122140	1.2KΩ
R420	1	1	1	GD05122140	1.2KΩ

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
R421	1	1	1	GD05122140	1.2KΩ
R422	1	1	1	GD05122140	1.2KΩ
R423	1	1	1	GG05680140	68Ω
R424	1	1	1	GG05680140	68Ω
R425	1	1	1	GG05680140	68Ω
R426	1	1	1	GG05680140	68Ω
R427	1	1	1	GD05101140	100Ω
R428	1	1	1	GD05101140	100Ω
R429	1	1	1	GG05120140	12Ω
R430	1	1	1	GG05120140	12Ω
R431	1	1	1	GG05120140	12Ω
R432	1	1	1	GG05120140	12Ω
R433	1	1	1	GD05393140	39KΩ
R434	1	1	1	GD05393140	39KΩ
R435	1	1	1	GM21413000	130Ω ±2%
R436	1	1	1	GM21413000	130Ω ±2%
R437	1	1	1	GM21475010	7.5KΩ ±2%
R438	1	1	1	GM21475010	7.5KΩ ±2%
R439	1	1	1	GD05101140	100Ω
R440	1	1	1	GD05101140	100Ω
R441	1	1	1	GM21490920	90.9KΩ ±2%
R442	1	1	1	GM21490920	90.9KΩ ±2%
R443	1	1	1	GD05472140	4.7KΩ
R444	1	1	1	GD05472140	4.7KΩ
R445	1	1	1	GD05101140	100Ω
R446	1	1	1	GD05101140	100Ω
R447	1	1	1	GD05104140	100KΩ
R448	1	1	1	GD05104140	100KΩ
R449	1	1	1	GG05470140	47Ω
R450	1	1	1	GG05470140	47Ω
R451	1	1	1	GD05224140	220KΩ
R452	1	1	1	GD05224140	220KΩ
R453	1	1	1	GD05683140	68KΩ
R454	1	1	1	GD05683140	68KΩ
R455	1	1	1	GD05222140	2.2KΩ
R456	1	1	1	GD05222140	2.2KΩ
					P400-SEMICONDUCTORS
Q401	1	1	1	HF201361Q0	F.E.T. 2K136 (Q)
Q402	1	1	1	HF201361Q0	F.E.T. 2K136 (Q)
Q403	1	1	1	HF201361Q0	F.E.T. 2K136 (Q)
Q404	1	1	1	HF201361Q0	F.E.T. 2K136 (Q)
Q405	1	1	1	HT322401B0	Transistor 2C2240 (BL)
Q406	1	1	1	HT322401B0	Transistor 2C2240 (BL)
Q407	1	1	1	HT109701B0	Transistor 2A970 (BL)
Q408	1	1	1	HT109701B0	Transistor 2A970 (BL)
Q409	1	1	1	HT109701B0	Transistor 2A970 (BL)
Q410	1	1	1	HT109701B0	Transistor 2A970 (BL)
Q411	1	1	1	HT322401A0	Transistor 2C2240 (GR)
Q412	1	1	1	HT322401A0	Transistor 2C2240 (GR)
Q413	1	1	1	HT108722D0	Transistor 2A872A (D or E)
Q414	1	1	1	HT108722D0	Transistor 2A872A (D or E)
Q415	1	1	1	HT317752D0	Transistor 2S1775A (D or E)
Q416	1	1	1	HT317752D0	Transistor 2S1775A (D or E)
Q417	1	1	1	HT317752D0	Transistor 2S1775A (D or E)
Q418	1	1	1	HT317752D0	Transistor 2S1775A (D or E)
Q419	1	1	1	HT108722D0	Transistor 2A872A (D or E)
Q420	1	1	1	HT108722D0	Transistor 2A872A (D or E)

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
Q421	1	1	1	HT407571C0	Transistor 2SD757 (C)
Q422	1	1	1	HT407571C0	Transistor 2SD757 (C)
Q423	1	1	1	HT207171C0	Transistor 2SB717 (C)
Q424	1	1	1	HT207171C0	Transistor 2SB717 (C)
Q425	1	1	1	HV00002060	Varistor VD1212
Q426	1	1	1	HV00002060	Varistor VD1212
Q427	1	1	1	HD20003210	Diode 1S2471
Q428	1	1	1	HD20003210	Diode 1S2471
Q429	1	1	1	HD20003210	Diode 1S2471
Q430	1	1	1	HD20003210	Diode 1S2471
Q431	1	1	1	HD20003210	Diode 1S2471
Q432	1	1	1	HD20003210	Diode 1S2471
Q433	1	1	1	HV00006120	Varistor MV203 (Y)
Q434	1	1	1	HV00006120	Varistor MV203 (Y)
Q435	1	1	1	HV00004060	Varistor VD1210
Q436	1	1	1	HV00004060	Varistor VD1210
Q437	1	1	1	HD20003210	Diode 1S2471
Q439	1	1	1	HT322401B0	Transistor 2SC2240 (BL)
Q440	1	1	1	HT322401B0	Transistor 2SC2240 (BL)
Q441	1	1	1	HT322401B0	Transistor 2SC2240 (BL)
Q442	1	1	1	HT322401B0	Transistor 2SC2240 (BL)
J401	1	1	1	YP06001650	Plug (10P)
J402	1	1	1	YP06001650	Plug (6P)
L401	1	1	1	LY20240120	Relay
P600	1	1	1	YH29781220	P.W. Board, Loudness Contour
	1	1	1	ZZ29781220	P.W. Board Assembly
C601	1	1	1	DF15104300	Film 0.1μF ±5%
C602	1	1	1	DF15104300	Film 0.1μF ±5%
C603	1	1	1	DF15222300	Film 0.0022μF ±5%
C604	1	1	1	DF15222300	Film 0.0022μF ±5%
R601	1	1	1	RG05030080	Variable, 250KΩx2, 50KΩx2
R602	1	1	1	GD05153140	15KΩ ±5% ¼W
R603	1	1	1	GD05153140	15KΩ ±5% ¼W
R604	1	1	1	GD05332140	3.3KΩ ±5% ¼W
R605	1	1	1	GD05332140	3.3KΩ ±5% ¼W
P800	1	1	1	YF29780010	P.W. Board, Power Supply
	1	1	1	ZZ29781060	P.W. Board Assembly
			1	ZZ29788060	P.W. Board Assembly
C801	1	1	1	DK18103510	Ceramic 0.01μF 500V
C802	1	1	1	DK18103510	Ceramic 0.01μF 500V
C803	1	1	1	DF17474510	Film 0.47μF ±20% 250V
C804	1	1	1	DF17474510	Film 0.47μF ±20% 250V
C805	1	1	1	EB10805060	Elect 1000μF 50V
C806	1	1	1	EB10805060	Elect 1000μF 50V
C807	1	1	1	DF15103350	Film 0.01μF ±5%
C808	1	1	1	DF15103350	Film 0.01μF ±5%
C809	1	1	1	EA10701090	Elect 100μF 10V
C810	1	1	1	EA47503590	Elect 4.7μF 35V

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
C811	1	1	1	EA47503590	Elect 4.7μF 35V
C812	1	1	1	EA10803590	Elect 1000μF 35V
C813	1	1	1	EA10803590	Elect 1000μF 35V
C814	1	1	1	DF17474510	Film 0.47μF ±20% 250V
C815	1	1	1	DF17474510	Film 0.47μF ±20% 250V
P800-RESISTORS (All Resistors are ±5% and ¼W)					
R803	1	1	1	GD05102140	1KΩ
R804	1	1	1	GD05102140	1KΩ
R807	1	1	1	GG05682120	6.8KΩ ¼W
R808	1	1	1	GD05473140	47KΩ
R809	1	1	1	GD05103140	10KΩ
R810	1	1	1	RA04720050	Trimming 4.7KΩ (B)
R811	1	1	1	GD05473140	47KΩ
R812	1	1	1	GD05473140	47KΩ
R813	1	1	1	GD05162140	1.6KΩ
R814	1	1	1	GG05151140	150Ω
R815	1	1	1	GG05151140	150Ω
Q801	1	1	1	HF200301C0	F.E.T. 2SK30A (Y)
Q802	1	1	1	HF200301C0	F.E.T. 2SK30A (Y)
Q803	1	1	1	HT315091Q0	Transistor 2SC1509 (Q)
Q804	1	1	1	HT107771Q0	Transistor 2SA777 (Q)
Q805	1	1	1	HT403132P0	Transistor 2SD313 (D or E)
Q806	1	1	1	HT205072P0	Transistor 2SB507 (D or E)
Q807	1	1	1	HT322402A0	Transistor 2SC2240 (GR or BL)
Q808	1	1	1	HT109702A0	Transistor 2SA970 (GR or BL)
Q809	1	1	1	HE10001030	Diode DS133B
Q810	1	1	1	HE10001030	Diode DS133B
Q811	1	1	1	HD30008010	Zener HZ-6L (B)
F801	1	1		FS10100080	Fuse 1A
F801			1	FS10100800	Fuse 1AT
F802	1	1		FS10100080	Fuse 1A
F802			1	FS10100800	Fuse 1AT
J801	?	4	4	YJ08000170	Jack, Fuse Holder
J804	?				
J801	?				
J804	?	4		YJ08000270	Jack, Fuse Holder
PE00	1	1	1	YN29782210	P.W. Board, Pre Amp.
	1	1	1	ZZ29781040	P.W. Board Assembly
CD01	1	1	1	DF16103300	Film 0.01μF ±10% 10V
CD02	1	1	1	EA10701090	Elect 100μF
CE01	1	1	1	DD15330370	Ceramic 33pF ±5%
CE02	1	1	1	DD15330370	Ceramic 33pF ±5%
CE03	1	1	1	DF15152350	Film 0.0015μF ±5%
CE04	1	1	1	DF15152350	Film 0.0015μF ±5%
CE05	1	1	1	EA22701090	Elect 220μF 10V
CE06	1	1	1	EA22701090	Elect 220μF 10V
CE07	1	1	1	DF15152350	Film 0.0015μF ±5%
CE08	1	1	1	DF15152350	Film 0.0015μF ±5%
CE09	1	1	1	EA10601690	Elect 10μF 16V
CE10	1	1	1	EA10601690	Elect 10μF 16V

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION		
	U	C	N				
CE11	1	1	1	DD15360300	Ceramic	36pF	±5%
CE12	1	1	1	DD15360300	Ceramic	36pF	±5%
CE13	1	1	1	EQ10603510	Elect	10μF	35V
CE14	1	1	1	EQ10603510	Elect	10μF	35V
CE15	1	1	1	DD15330300	Ceramic	33pF	±5%
CE16	1	1	1	DD15330300	Ceramic	33pF	±5%
CE17	1	1	1	EA10703590	Elect	100μF	35V
CE18	1	1	1	EA10703590	Elect	100μF	35V
CE19	1	1	1	DF17474510	Film	0.47μF	±20%
CE20	1	1	1	DF17474510	Film	0.47μF	±20%
CE23	1	1	1	DF15152350	Film	0.0015μF	±5%
CE24	1	1	1	DF15152350	Film	0.0015μF	±5%
CE25	1	1	1	DF15152350	Film	0.0015μF	±5%
CE26	1	1	1	DF15152350	Film	0.0015μF	±5%
CE27	1	1	1	DD15360300	Ceramic	36pF	±5%
CE28	1	1	1	DD15360300	Ceramic	36pF	±5%
CE29	1	1	1	EA10601690	Elect	10μF	16V
CE30	1	1	1	EA10601690	Elect	10μF	16V
CE31	1	1	1	EQ10603510	Elect	10μF	35V
CE32	1	1	1	EQ10603510	Elect	10μF	35V
CE33	1	1	1	DD15330300	Ceramic	33pF	±5%
CE34	1	1	1	DD15330300	Ceramic	33pF	±5%
CH01	1	1	1	DF16104300	Film	0.1μF	±10%
CH02	1	1	1	DF16104300	Film	0.1μF	±10%
CH03	1	1	1	EA47503590	Elect	4.7μF	35V
CH04	1	1	1	EA47503590	Elect	4.7μF	35V
CH05	1	1	1	EA33603590	Elect	33μF	35V
CH06	1	1	1	EA33603590	Elect	33μF	35V
CH07	1	1	1	EA10703590	Elect	100μF	35V
CH08	1	1	1	EA10703590	Elect	100μF	35V
CH09	1	1	1	DF17474510	Film	0.47μF	±20%
CH10	1	1	1	DF17474510	Film	0.47μF	±20%
CH11	1	1	1	DF15224300	Film	0.22μF	±5%
CH12	1	1	1	DF15224300	Film	0.22μF	±5%
CH13	1	1	1	DF15224300	Film	0.22μF	±5%
CH14	1	1	1	DF15224300	Film	0.22μF	±5%
CH15	1	1	1	DF15224300	Film	0.22μF	±5%
CH16	1	1	1	DF15224300	Film	0.22μF	±5%
CH17	1	1	1	DF15152350	Film	0.0015μF	±5%
CH18	1	1	1	DF15152350	Film	0.0015μF	±5%
CH19	1	1	1	DF15222350	Film	0.0022μF	±5%
CH20	1	1	1	DF15222350	Film	0.0022μF	±5%
CH21	1	1	1	DF55391090	Film	390pF	±5%
CH22	1	1	1	DF55391090	Film	390pF	±5%
CH23	1	1	1	DF15683300	Film	0.068μF	±5%
CH24	1	1	1	DF15683300	Film	0.068μF	±5%
CH25	1	1	1	DF15683300	Film	0.068μF	±5%
CH26	1	1	1	DF15683300	Film	0.068μF	±5%
CH27	1	1	1	DF15182350	Film	0.0018μF	±5%
CH28	1	1	1	DF15182350	Film	0.0018μF	±5%

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
PE00-RESISTORS (All Resistor are ±5% and ¼W)					
RD01	1	1	1	GA05472010	4.7KΩ 1W
RD04	1	1	1	GD05103140	10KΩ
RD05	1	1	1	GD05304140	300KΩ
RD06	1	1	1	GD05104140	100KΩ
RD07	1	1	1	GD05753140	75KΩ
RD08	1	1	1	GD05103140	10KΩ
RD09	1	1	1	GD05153140	15KΩ
RD10	1	1	1	GD05182140	1.8KΩ
RD11	1	1	1	GD05101140	100Ω
RE01	1	1	1	GD05331140	330Ω
RE02	1	1	1	GD05331140	330Ω
RE03	1	1	1	GD05224140	220KΩ
RE04	1	1	1	GD05224140	220KΩ
RE05	1	1	1	GD05222140	2.2KΩ
RE06	1	1	1	GD05222140	2.2KΩ
RE07	1	1	1	GD05222140	2.2KΩ
RE08	1	1	1	GD05222140	2.2KΩ
RE09	1	1	1	GD05101140	100Ω
RE10	1	1	1	GD05101140	100Ω
RE11	1	1	1	GD05101140	100Ω
RE12	1	1	1	GD05101140	100Ω
RE13	1	1	1	GD05153140	15KΩ
RE14	1	1	1	GD05153140	15KΩ
RE15	1	1	1	GD05560140	56Ω
RE16	1	1	1	GD05560140	56Ω
RE17	1	1	1	GD05182140	1.8KΩ
RE18	1	1	1	GD05182140	1.8KΩ
RE19	1	1	1	GD05222140	2.2KΩ
RE20	1	1	1	GD05222140	2.2KΩ
RE21	1	1	1	GD05222140	2.2KΩ
RE22	1	1	1	GD05222140	2.2KΩ
RE23	1	1	1	GD05151140	150Ω
RE24	1	1	1	GD05151140	150Ω
RE25	1	1	1	GD05151140	150Ω
RE26	1	1	1	GD05151140	150Ω
RE27	1	1	1	GD05473140	47KΩ
RE28	1	1	1	GD05473140	47KΩ
RE29	1	1	1	GD05473140	47KΩ
RE30	1	1	1	GD05473140	47KΩ
RE31	1	1	1	GD05560140	56Ω
RE32	1	1	1	GD05560140	56Ω
RE33	1	1	1	GD05102140	1KΩ
RE34	1	1	1	GD05102140	1KΩ
RE35	1	1	1	GG05270140	27Ω
RE36	1	1	1	GG05270140	27Ω
RE37	1	1	1	GG05270140	27Ω
RE38	1	1	1	GG05270140	27Ω
RE39	1	1	1	GD05047140	4.7Ω
RE40	1	1	1	GD05047140	4.7Ω
RE41	1	1	1	GD05104140	100KΩ
RE42	1	1	1	GD05104140	100KΩ
RE43	1	1	1	GD05183140	18KΩ
RE44	1	1	1	GD05183140	18KΩ
RE45	1	1	1	GD05331140	330Ω
RE46	1	1	1	GD05331140	330Ω
RE49	1	1	1	GD05222140	2.2KΩ
RE50	1	1	1	GD05222140	2.2KΩ
RE51	1	1	1	GD05222140	2.2KΩ
RE52	1	1	1	GD05222140	2.2KΩ

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
RE53	1	1	1	GD05101140	100Ω
RE54	1	1	1	GD05101140	100Ω
RE55	1	1	1	GD05101140	100Ω
RE56	1	1	1	GD05101140	100Ω
RE57	1	1	1	GD05153140	15KΩ
RE58	1	1	1	GD05153140	15KΩ
RE59	1	1	1	GD05222140	2.2KΩ
RE60	1	1	1	GD05222140	2.2KΩ
RE61	1	1	1	GD05222140	2.2KΩ
RE62	1	1	1	GD05222140	2.2KΩ
RE63	1	1	1	GD05560140	56Ω
RE64	1	1	1	GD05560140	56Ω
RE65	1	1	1	GD05560140	56Ω
RE66	1	1	1	GD05560140	56Ω
RE67	1	1	1	GD05473140	47KΩ
RE68	1	1	1	GD05473140	47KΩ
RE69	1	1	1	GD05473140	47KΩ
RE70	1	1	1	GD05473140	47KΩ
RE71	1	1	1	GD05151140	150Ω
RE72	1	1	1	GD05151140	150Ω
RE73	1	1	1	GD05151140	150Ω
RE74	1	1	1	GD05151140	150Ω
RE75	1	1	1	GD05102140	1KΩ
RE76	1	1	1	GD05102140	1KΩ
RE77	1	1	1	GG05270140	27Ω
RE78	1	1	1	GG05270140	27Ω
RE79	1	1	1	GG05270140	27KΩ
RE80	1	1	1	GG05270140	27Ω
RE83	1	1	1	GD05104140	100KΩ
RE84	1	1	1	GD05104140	100KΩ
RE85	1	1	1	GD05105140	1MΩ
RE86	1	1	1	GD05105140	1MΩ
RE87	1	1	1	GA05680010	68Ω 1W
RE88	1	1	1	GA05680010	68Ω 1W
RH01	1	1	1	GD05331140	330Ω
RH02	1	1	1	GD05331140	330Ω
RH03	1	1	1	GD05471140	470Ω
RH04	1	1	1	GD05471140	470Ω
RH05	1	1	1	GD05471140	470Ω
RH06	1	1	1	GD05471140	470Ω
RH07	1	1	1	GD05332140	3.3KΩ
RH08	1	1	1	GD05332140	3.3KΩ
RH09	1	1	1	GD05332140	3.3KΩ
RH10	1	1	1	GD05332140	3.3KΩ
RH11	1	1	1	GD05104140	100KΩ
RH12	1	1	1	GD05104140	100KΩ
RH13	1	1	1	GD05101140	100Ω
RH14	1	1	1	GD05101140	100Ω
RH15	1	1	1	GD05101140	100Ω
RH16	1	1	1	GD05101140	100Ω
RH17	1	1	1	GG05047140	4.7Ω
RH18	1	1	1	GG05047140	4.7Ω
RH19	1	1	1	GG05047140	4.7Ω
RH20	1	1	1	GG05047140	4.7Ω

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
RH21	1	1	1	GD05105140	1MΩ
RH22	1	1	1	GD05105140	1MΩ
RH23	1	1	1	GD05104140	100KΩ
RH24	1	1	1	GD05104140	100KΩ
RH25	1	1	1	GA05680010	68Ω 1W
RH26	1	1	1	GA05680010	68Ω 1W
RH27	1	1	1	GD05393140	39KΩ
RH28	1	1	1	GD05393140	39KΩ
RH29	1	1	1	GD05153140	15KΩ
RH30	1	1	1	GD05153140	15KΩ
RH31	1	1	1	GD05304140	300KΩ
RH32	1	1	1	GD05304140	300KΩ
RH33	1	1	1	GD05113140	11KΩ
RH34	1	1	1	GD05113140	11KΩ
RH35	1	1	1	GD05113140	11KΩ
RH36	1	1	1	GD05113140	11KΩ
RH37	1	1	1	GD05113140	11KΩ
RH38	1	1	1	GD05113140	11KΩ
RH39	1	1	1	GD05182140	1.8KΩ
RH40	1	1	1	GD05182140	1.8KΩ
RH41	1	1	1	GD05153140	15KΩ
RH42	1	1	1	GD05153140	15KΩ
RH43	1	1	1	GD05224140	220KΩ
RH44	1	1	1	GD05224140	220KΩ
RH45	1	1	1	GD05101140	100Ω
RH46	1	1	1	GD05101140	100Ω
RH47	1	1	1	GD05150140	15Ω
RH48	1	1	1	GD05150140	15Ω
RH49	1	1	1	GD05150140	15Ω
RH50	1	1	1	GD05150140	15Ω
PE00-SEMICONDUCTORS					
QD01	1	1	1	HT110152A0	Transistor 2SA1015 (O or Y)
QD02	1	1	1	HT318152A0	Transistor 2SC1815 (O or Y)
QD03	1	1	1	HT318152A0	Transistor 2SC1815 (O or Y)
QD05	1	1	1	HD20003210	Diode 1S2471
QD06	1	1	1	HD20003210	Diode 1S2471
QE01	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE02	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE03	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE04	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE05	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE06	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE07	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE08	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE09	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QE10	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QE11	1	1	1	HT406661C0	Transistor 2SA666 (C)
QE12	1	1	1	HT406661C0	Transistor 2SA666 (C)
QE13	1	1	1	HT206461C0	Transistor 2SB646 (C)
QE14	1	1	1	HT206461C0	Transistor 2SB646 (C)
QE15	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE16	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE17	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE18	1	1	1	HF201172B0	F.E.T. 2SK117 (Y or GR)
QE19	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE20	1	1	1	HT108722D0	Transistor 2SA872A (D or E)

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
QE21	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE22	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QE23	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QE24	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QE25	1	1	1	HT406661C0	Transistor 2SD666 (C)
QE26	1	1	1	HT406661C0	Transistor 2SD666 (C)
QE27	1	1	1	HT206461C0	Transistor 2SB646 (C)
QE28	1	1	1	HT206461C0	Transistor 2SB646 (C)
QE29	1	1	1	HD20003210	Diode 1S2471
QE30	1	1	1	HD20003210	Diode 1S2471
QE31	1	1	1	HV00006120	Varistor MV203 (Y)
QE32	1	1	1	HV00006120	Varistor MV203 (Y)
QE33	1	1	1	HD20003210	Diode 1S2471
QE34	1	1	1	HD20003210	Diode 1S2471
QE35	1	1	1	HV00006120	Varistor MV203 (Y)
QE36	1	1	1	HV00006120	Varistor MV203 (Y)
QH01	1	1	1	HT108722D0	Transistor 2SA872 (D or E)
QH02	1	1	1	HT108722D0	Transistor 2SA872 (D or E)
QH03	1	1	1	HT317752D0	Transistor 2SC1775 (D or E)
QH04	1	1	1	HT317752D0	Transistor 2SC1775 (D or E)
QH05	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QH06	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QH07	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QH08	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QH09	1	1	1	HT406661C0	Transistor 2SD666 (C)
QH10	1	1	1	HT406661C0	Transistor 2SD666 (C)
QH11	1	1	1	HT206461C0	Transistor 2SB646 (C)
QH12	1	1	1	HT206461C0	Transistor 2SB646 (C)
LD01	1	1	1	LY20240120	Relay
JH01	1	1	1	YP06001160	Plug, (12P)
JH02	1	1	1	YP06001140	Plug, (7P)
JH03	1	1	1	YP06001140	Plug, (7P)
SH01	1	1	1	SP04060090	Push Switch
PF00	2	2	2	YN29782240	P.W. Board, Tone VR.
	2	2	2	ZZ29782240	P.W. Board Assembly
CF01	2	2	2	DF15153300	Film 0.015 μ F $\pm$ 5%
CF02	2	2	2	DF15153300	Film 0.015 μ F $\pm$ 5%
CF03	2	2	2	DF15562300	Film 0.0056 μ F $\pm$ 5%
CF04	2	2	2	DD15331370	Ceramic 330pF $\pm$ 5%
CF05	2	2	2	DF15562300	Film 0.0056 μ F $\pm$ 5%
CF06	2	2	2	DF15103300	Film 0.01 μ F $\pm$ 5%
CF07	2	2	2	DF15103300	Film 0.01 μ F $\pm$ 5%
CF08	2	2	2	DD15221370	Ceramic 220pF $\pm$ 5%

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
RF01	2	2	2	RX01040040	Variable, Bass
RF02	2	2	2	RX01040040	Variable, Mid
RF03	2	2	2	RX01040040	Variable, Treble
RF04	2	2	2	GD05183140	18K Ω
RF05	2	2	2	GD05183140	18K Ω
RF06	2	2	2	GD05273140	27K Ω
RF07	2	2	2	GD05273140	27K Ω
RF08	2	2	2	GD05562140	5.6K Ω
RF09	2	2	2	GD05562140	5.6K Ω
RF11	2	2	2	GD05392140	3.9K Ω
RF12	2	2	2	GD05562140	5.6K Ω
RF13	2	2	2	GD05562140	5.6K Ω
JF01	2	2	2	YJ06001970	Jack, (10P)
JF02	2	2	2	YJ06001980	Jack, (6P)
PF01	2	2	2	YN29782220	P.W. Board, Tone VR Connector
	2	2	2	ZZ29782220	P.W. Board Assembly
JF03	2	2	2	YP06001670	Plug, (16P)
PG00	1	1	1	YN29782230	P.W. Board, Volume Buffer
	1	1	1	ZZ29781100	P.W. Board Assembly
CG01	1	1	1	DF16104300	Film 0.1 μ F $\pm$ 10%
CG02	1	1	1	DF16104300	Film 0.1 μ F $\pm$ 10%
CG05	1	1	1	EA33603590	Elect 33 μ F 35V
CG06	1	1	1	EA33603590	Elect 33 μ F 35V
RG01	1	1	1	RG05030070	Variable 50K Ω x 4
RG03	1	1	1	GD05471140	470 Ω
RG04	1	1	1	GD05471140	470 Ω
RG05	1	1	1	GD05471140	470 Ω
RG06	1	1	1	GD05471140	470 Ω
RG07	1	1	1	GD05332140	3.3K Ω
RG08	1	1	1	GD05332140	3.3K Ω
RG09	1	1	1	GD05332140	3.3K Ω
RG10	1	1	1	GD05332140	3.3K Ω
RG11	1	1	1	GD05104140	100K Ω
RG12	1	1	1	GD05104140	100K Ω
RG13	1	1	1	GD05101140	100 Ω
RG14	1	1	1	GD05101140	100 Ω
RG15	1	1	1	GD05101140	100 Ω
RG16	1	1	1	GD05101140	100 Ω
RG17	1	1	1	GG05047140	4.7 Ω
RG18	1	1	1	GG05047140	4.7 Ω
RG19	1	1	1	GG05047140	4.7 Ω
RG20	1	1	1	GG05047140	4.7 Ω
RG21	1	1	1	GD05224140	220K Ω

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
RG22	1	1	1	GD05224140	220K Ω
RG23	1	1	1	GD05224140	220K Ω
RG24	1	1	1	GD05224140	220K Ω
RG25	1	1	1	GD05331140	330 Ω
RG26	1	1	1	GD05331140	330 Ω
RG27	1	1	1	GD05102140	1K Ω
RG28	1	1	1	GD05102140	1K Ω
RG29	1	1	1	GD05150140	15 Ω
RG30	1	1	1	GD05150140	15 Ω
RG31	1	1	1	GD05150140	15 Ω
RG32	1	1	1	GD05150140	15 Ω
PG00-SEMICONDUCTORS					
QG01	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QG02	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QG03	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QG04	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QG05	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QG06	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QG07	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QG08	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QG09	1	1	1	HT406661C0	Transistor 2SD666 (C)
QG10	1	1	1	HT406661C0	Transistor 2SD666 (C)
QG11	1	1	1	HT206461C0	Transistor 2SB646 (C)
QG12	1	1	1	HT206461C0	Transistor 2SB646 (C)
PG00-MISCELLANEOUS					
JG01	1	1	1	YJ06001660	Jack, (7P)
JG02	1	1	1	YJ06001660	Jack, (7P)
SG01	1	1	1	SR04050180	Rotary Switch
PJ00-SELECTOR SWITCH CIRCUIT BOARD					
PJ00	1	1	1	YF29780030	P.W. Board, Selector Switch
	1	1	1	ZZ29780030	P.W. Board Assembly
CJ01	1	1	1	EA47503590	Elect Cap. 4.7 μ F 35V
PJ00-MISCELLANEOUS					
JJ01	1	1	1	YJ06001970	Jack, (10P)
JJ02	1	1	1	YJ06001980	Jack, (6P)
JJ03	1	1	1	YJ06001680	Jack, (12P)
SJ01	1	1	1	SP06060100	Push Switch, Input
SJ02	1	1	1	SR04050170	Rotary Switch, Record, 1
SJ03	1	1	1	SR04050170	Rotary Switch, Record, 2
PK00-TAPE EQ CIRCUIT BOARD					
PK00	1	1	1	YF29780040	P.W. Board, Tape EQ
	1	1	1	ZZ29780040	P.W. Board Assembly
PK00-CAPACITORS					
CK01	1	1	1	DF16104300	Film 0.1 μ F $\pm$ 10%
CK02	1	1	1	DF16104300	Film 0.1 μ F $\pm$ 10%
CK03	1	1	1	EA10603590	Elect 10 μ F 35V
CK04	1	1	1	EA10603590	Elect 10 μ F 35V
CK05	1	1	1	EA10605090	Elect 10 μ F 50V
CK06	1	1	1	EA10605090	Elect 10 μ F 50V
CK08	1	1	1	EA10703590	Elect 100 μ F 35V
CK09	1	1	1	EA10703590	Elect 100 μ F 35V
CK11	1	1	1	DF16222300	Film 0.0022 μ F $\pm$ 10%
CK12	1	1	1	DF16222300	Film 0.0022 μ F $\pm$ 10%

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
PK00-RESISTORS (All Resistors are $\pm 5\%$ and $\frac{1}{4}W$)					
RK01	1	1	1	GD05331140	330 Ω
RK02	1	1	1	GD05331140	330 Ω
RK03	1	1	1	GD05471140	470 Ω
RK04	1	1	1	GD05471140	470 Ω
RK05	1	1	1	GD05471140	470 Ω
RK06	1	1	1	GD05471140	470 Ω
RK07	1	1	1	GD05332140	3.3K Ω
RK08	1	1	1	GD05332140	3.3K Ω
RK09	1	1	1	GD05332140	3.3K Ω
RK10	1	1	1	GD05332140	3.3K Ω
RK11	1	1	1	GD05104140	100K Ω
RK12	1	1	1	GD05104140	100K Ω
RK13	1	1	1	GD05101140	100 Ω
RK14	1	1	1	GD05101140	100 Ω
RK15	1	1	1	GD05101140	100 Ω
RK16	1	1	1	GD05101140	100 Ω
RK17	1	1	1	GD05047140	4.7 Ω
RK18	1	1	1	GD05047140	4.7 Ω
RK19	1	1	1	GD05047140	4.7 Ω
RK20	1	1	1	GD05047140	4.7 Ω
RK21	1	1	1	GD05047140	4.7 Ω
RK22	1	1	1	GD05047140	4.7 Ω
RK23	1	1	1	GD05104140	100K Ω
RK24	1	1	1	GD05104140	100K Ω
RK25	1	1	1	GF05151120	150 Ω $\frac{1}{4}W$
RK26	1	1	1	GF05151120	150 Ω $\frac{1}{4}W$
RK27	1	1	1	GD05224140	220K Ω
RK28	1	1	1	GD05224140	220K Ω
RK29	1	1	1	GD05150140	15 Ω
RK30	1	1	1	GD05150140	15 Ω
RK31	1	1	1	GD05150140	15 Ω
RK32	1	1	1	GD05150140	15 Ω
PK00-SEMICONDUCTORS					
QK01	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QK02	1	1	1	HT108722D0	Transistor 2SA872A (D or E)
QK03	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QK04	1	1	1	HT317752D0	Transistor 2SC1775A (D or E)
QK05	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QK06	1	1	1	HT322401A0	Transistor 2SC2240 (GR)
QK07	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QK08	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QK09	1	1	1	HT406661C0	Transistor 2SD666 (C)
QK10	1	1	1	HT406661C0	Transistor 2SD666 (C)
QK11	1	1	1	HT206461C0	Transistor 2SB646 (C)
QK12	1	1	1	HT206461C0	Transistor 2SB646 (C)
PK00-MISCELLANEOUS					
JK01	1	1	1	YP06001580	Plug, (12P)
JK02	1	1	1	YJ06001680	Jack, (12P)
SK01	1	1	1	SC00030010	Switch
SK02	1	1	1	SB11000010	Switch Band, Fix
SK03	1	1	1	SS10040010	Slide Switch

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
PL00	1	1	1	YH29781210 ZZ29781210	PL00-CARTRIDGE LOAD CIRCUIT BOARD P.W. Board, Cartridge Load P.W. Board Assembly
					PL00-CAPACITORS
CL01	1	1	1	DD15390300	Ceramic 39pF ±5%
CL02	1	1	1	DD15390300	Ceramic 39pF ±5%
CL03	1	1	1	DF55101090	Film 100pF ±5%
CL04	1	1	1	DF55101090	Film 100pF ±5%
CL05	1	1	1	DF55221090	Film 220pF ±5%
CL06	1	1	1	DF55221090	Film 220pF ±5%
CL07	1	1	1	DF55361090	Film 360pF ±5%
CL08	1	1	1	DF55361090	Film 360pF ±5%
CL09	1	1	1	DD15390300	Ceramic 39pF ±5%
CL10	1	1	1	DD15390300	Ceramic 39pF ±5%
CL11	1	1	1	DF55101090	Film 100pF ±5%
CL12	1	1	1	DF55101090	Film 100pF ±5%
CL13	1	1	1	DF55221090	Film 220pF ±5%
CL14	1	1	1	DF55221090	Film 220pF ±5%
CL15	1	1	1	DF55361090	Film 360pF ±5%
CL16	1	1	1	DF55361090	Film 360pF ±5%
CL17	1	1	1	DD15100010	Ceramic 10pF ±5%
CL18	1	1	1	DD15100010	Ceramic 10pF ±5%
					PL00-RESISTORS (All Resistors are ±5% and ¼W)
RL01	1	1	1	GD05112140	1.1KΩ
RL02	1	1	1	GD05112140	1.1KΩ
RL03	1	1	1	GD05123140	12KΩ
RL04	1	1	1	GD05123140	12KΩ
RL05	1	1	1	GD05393140	39KΩ
RL06	1	1	1	GD05393140	39KΩ
RL07	1	1	1	GD05104140	100KΩ
RL08	1	1	1	GD05104140	100KΩ
RL09	1	1	1	GD05112140	1.1KΩ
RL10	1	1	1	GD05112140	1.1KΩ
RL11	1	1	1	GD05123140	12KΩ
RL12	1	1	1	GD05123140	12KΩ
RL13	1	1	1	GD05393140	39KΩ
RL14	1	1	1	GD05393140	39KΩ
RL15	1	1	1	GD05104140	100KΩ
RL16	1	1	1	GD05104140	100KΩ
					PL00-SWITCH
SL01	1	1	1	SR04050190	Rotary Switch
SL02	1	1	1	SR04050190	Rotary Switch

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
PM01	1	1	1	YK29780210 ZZ29780210	PM01-MC AMP. CIRCUIT BOARD P.W. Board, MC Amp. P.W. Board Assembly
					PM01-CAPACITORS
CM01	1	1	1	DD15101300	Ceramic 100pF ±5%
CM02	1	1	1	DD15101300	Ceramic 100pF ±5%
CM03	1	1	1	DF15152350	Film 0.0015μF ±5%
CM04	1	1	1	DF15152350	Film 0.0015μF ±5%
CM05	1	1	1	EA47700690	Elect 470μF 6V
CM06	1	1	1	EA47700690	Elect 470μF 6V
CM07	1	1	1	EA47503590	Elect 4.7μF 35V
CM08	1	1	1	EA47503590	Elect 4.7μF 35V
CM09	1	1	1	DD15560300	Ceramic 56pF ±5%
CM10	1	1	1	DD15560300	Ceramic 56pF ±5%
CM11	1	1	1	EA47700690	Elect 470μF 6.3V
CM12	1	1	1	EA47700690	Elect 470μF 6.3V
CM13	1	1	1	DF15102300	Film 0.001μF ±5%
CM14	1	1	1	DF15102300	Film 0.001μF ±5%
CM15	1	1	1	EQ10603510	Elect 10μF 35V
CM16	1	1	1	EQ10603510	Elect 10μF 35V
CM17	1	1	1	DF17474510	Film 0.47μF ±20%
CM18	1	1	1	DF17474510	Film 0.47μF ±20%
CM19	1	1	1	EA47601690	Elect 47μF 16V
CM20	1	1	1	EA47601690	Elect 47μF 16V
CM21	1	1	1	EA22701690	Elect 220μF 16V
CM22	1	1	1	EA22701690	Elect 220μF 16V
					PM01-RESISTORS (All Resistors are ±5% and ¼W)
RM01	1	1	1	GD05033140	3.3Ω
RM02	1	1	1	GD05033140	3.3Ω
RM03	1	1	1	GD05470140	47Ω
RM04	1	1	1	GD05470140	47Ω
RM05	1	1	1	GM21422110	2.21KΩ ±20%
RM06	1	1	1	GM21422110	2.21KΩ ±20%
RM07	1	1	1	GD05163140	16KΩ
RM08	1	1	1	GD05163140	16KΩ
RM09	1	1	1	GD05220140	22Ω
RM10	1	1	1	GD05220140	22Ω
RM11	1	1	1	GD05152140	1.5KΩ
RM12	1	1	1	GD05152140	1.5KΩ
RM13	1	1	1	GD05121140	120Ω
RM14	1	1	1	GD05121140	120Ω
RM15	1	1	1	GD05153140	15KΩ
RM16	1	1	1	GD05153140	15KΩ
RM17	1	1	1	GD05152140	1.5KΩ
RM18	1	1	1	GD05152140	1.5KΩ
RM19	1	1	1	GG05220140	22Ω
RM20	1	1	1	GG05220140	22Ω

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
RM21	1	1	1	GG05220140	22 Ω
RM22	1	1	1	GG05220140	22 Ω
RM23	1	1	1	GD05471140	470 Ω
RM24	1	1	1	GD05471140	470 Ω
RM25	1	1	1	GD05103140	10K Ω
RM26	1	1	1	GD05103140	10K Ω
RM27	1	1	1	GD05470140	47 Ω
RM28	1	1	1	GD05470140	47 Ω
RM29	1	1	1	GD05470140	47 Ω
RM30	1	1	1	GD05470140	47 Ω
RM31	1	1	1	GD05223140	22K Ω
RM32	1	1	1	GD05223140	22K Ω
RM33	1	1	1	GD05273140	27K Ω
RM34	1	1	1	GD05273140	27K Ω
QM01	1	1	1	HF201472A0	PM01-SEMICONDUCTORS
QM02	1	1	1	HF201472A0	F.E.T. 2SK147 (GR . BL)
QM03	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QM04	1	1	1	HT109701A0	Transistor 2SA970 (GR)
QM05	1	1	1	HT406661C0	Transistor 2SD666 (C)
QM06	1	1	1	HT406661C0	Transistor 2SD666 (C)
QM07	1	1	1	HT206461C0	Transistor 2SB646 (C)
QM08	1	1	1	HT206461C0	Transistor 2SB646 (C)
QM09	1	1	1	HV00006120	Varistor MV203 (Y)
QM10	1	1	1	HV00006120	Varistor MV203 (Y)
QM11	1	1	1	HT403132P0	Transistor 2SD313 (D or E)
QM12	1	1	1	HT205072P0	Transistor 2SB507 (D or E)
SM01	1	1	1	SP04010300	PM01-SWITCH Push Switch
PV00	1	1	1	YF29780020	PV00-RCA PIN CIRCUIT BOARD
	1	1	1	ZZ29780020	P.W. Board, RCA Pin
			1	ZZ29788020	P.W. Board Assembly
CV01	1	1	1	DK18473320	Ceramic 0.047 μ F +100% -0
RV01			1	GD05394140	PV00-RESISTORS
RV02			1	GD05394140	(All Resistors are $\pm$ 5% and $\frac{1}{4}$ W)
RV03			1	GD05104140	390K Ω
RV04			1	GD05104140	390K Ω
RV05			1	GD05394140	100K Ω
RV06			1	GD05394140	100K Ω
RV07			1	GD05104140	390K Ω
RV08			1	GD05104140	390K Ω

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
JV01	1	1	1	YT02040270	PV00-JACK
JV02	1	1	1	YT02040150	Terminal, Phono 1, 2
JV03			1	BY01050060	Terminal, Tuner 1 Aux
JV03	1	1		YT02040150	Jack, Tape Monitor 1
JV04			1	BY01050060	Terminal, Tape Monitor 1
JV04	1	1		YT02040150	Jack, Tape Monitor 2
JV05	1	1	1	YT02020150	Terminal, Tape Monitor 2
JV06	1	1	1	YT02040150	Terminal, Scope Out
					Pre Out
PW00	1	1	1	YD29700032	PW00-SPEAKER SWITCH
	1	1	1	ZZ29780010	CIRCUIT BOARD
					P.W. Board, Speaker Switch
					P.W. Board As
RW01	1	1	1	GA05331020	PW00-RESISTORS
RW02	1	1	1	GA05331020	330 Ω 2W
RW03	1	1	1	GA05151010	330 Ω 2W
RW04	1	1	1	GA05151010	150 Ω 1W
					150 Ω 1W
JW01	1	1	1	YJ01000860	PW00-MISCELLANEOUS
					Jack, Headphone
SW01	1	1	1	SP02020240	Push Switch

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

10. TECHNICAL SPECIFICATIONS

FOR U.S.A. MODEL ONLY

AUDIO SECTION:

Rated Output Level	3 Volts RMS
Total Harmonic Distortion (THD), 20 Hz to 20 kHz at Rated Output Level	0.005%
Intermodulation (IM) Distortion at Rated Output	0.003%
Phono Section	
Input Overload at 1 kHz (MM)	250 mV
THD (150 mV Input at 1 kHz)	0.005%
Equivalent Input Noise ("A" Weighted)	
Phono (MM)	0.24 μ V
Phono (MC)	0.07 μ V
Dynamic Range ("A" Weighted)	
Phono (MM)	120 dB
Input Sensitivity (ref. Output 1.5 V)	
Phono (MM)	1.8 mV
Phono (MC)	200 μ V
Input Impedance	
Phono (MM)	100 k, 47 k, 27 k, 10 k, or 1 k ohms
Phono (MC)	50 ohms
Input Capacitance (MM)	470, 330, 220, 150 or 100 pF
Frequency Response, RIAA 20 Hz to 20 kHz	± 0.2 dB
Signal to Noise Ratio (ref. to rated output and 7.75 mV input "PHONO MM" or 0.775 mV input "PHONO MC" at 1 kHz, "A" weighted)	
Phono (MM)	90 dB
Phono (MC)	81 dB
High Level Inputs (Aux. Tape and Tuner)	
Input Sensitivity (ref. Output 1.5 V)	150 mV
Input Impedance	40 k ohms
Frequency Response	
20 Hz ~ 20 kHz	± 0.1 dB
5 Hz ~ 100 kHz	± 1.2 dB
Signal-to-Noise Ratio (ref. to Rated Output and 775 mV input "A" weighted)	100 dB
Output Levels	
Tape Out (ref. to 7.75 mV at Phono (MM) Input)	590 mV
Pre Out (ref. to 150 mV at Aux Inputs)	1.5 V
(ref. to 500 mV at Aux Inputs)	5.0 V
Output Impedance	
Tape Out (Phono Mode)	110 ohms
Pre Out	100 ohms

GENERAL:

Power Requirements	120 V A.C. 60 Hz
Power Consumption	29 Watts
Dimensions (W x H x D)	16-3/8" x 5-3/4" x 9-9/16" (416 mm x 146 mm x 243 mm)
Weight	
Unit Alone	18.7 lbs (8.5 kg)
Packed for Shipment	23.1 lbs (10.5 kg)

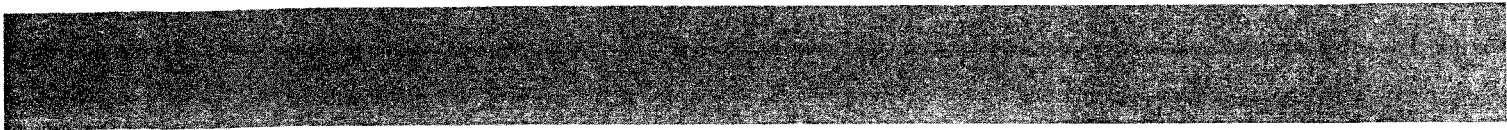
FOR EUROPEAN MODEL ONLY

AUDIO SECTION

TOTAL HARMONIC DISTORTION	0.005%
I.M. DISTORTION	0.005%
(250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	
Frequency Response	±0.2 dB
Phono (RIAA)	1 Hz — 200 kHz
Aux (±1 dB)	
Signal-to-Noise Ratio (IHF-A Network)	
Phono (MC)	76 dB
(MM)	90 dB
Aux	100 dB
Input Terminals	
Phono: Input Impedance (MC)	50 ohms
(MM)	100 k ohms
(MM)	47 k ohms
(MM)	27 k ohms
(MM)	10 k ohms
(MM)	1 k ohms
Input Capacitance (MM)	100 pF
(MM)	150 pF
(MM)	220 pF
(MM)	330 pF
(MM)	470 pF
Input Sensitivity (MC)	100 µV
(MM)	1.8 mV
Overload Margin	42 dB
Aux: Input Impedance	40 k ohms
Input Sensitivity	150 mV
Phono Equivalent Input Noise (IHF-A Network)	
(MC)	0.07 µV
(MM)	0.24 µV
Phono Dynamic Range (Ratio of input overload to equivalent input noise)	120 dB
Channel Balance (0 to -40 dB/40 Hz—16 kHz)	
Phono	1.0 dB
Aux	0.5 dB
Interchannel Crosstalk	
Phono 1 kHz	52 dB
Aux 1 kHz	56 dB
Tape 1 kHz	56 dB
Intersource Crosstalk (Worst Point)	
1 kHz	52 dB
Output Voltage, 1 kHz	
Tape Out: Phono (MM) 7.75 mV Input	590 mV
Pre Out: Aux 775 mV Input	7.75 V
Output Impedance, 1 kHz	
Tape Out	110 ohms
Pre Out	100 ohms

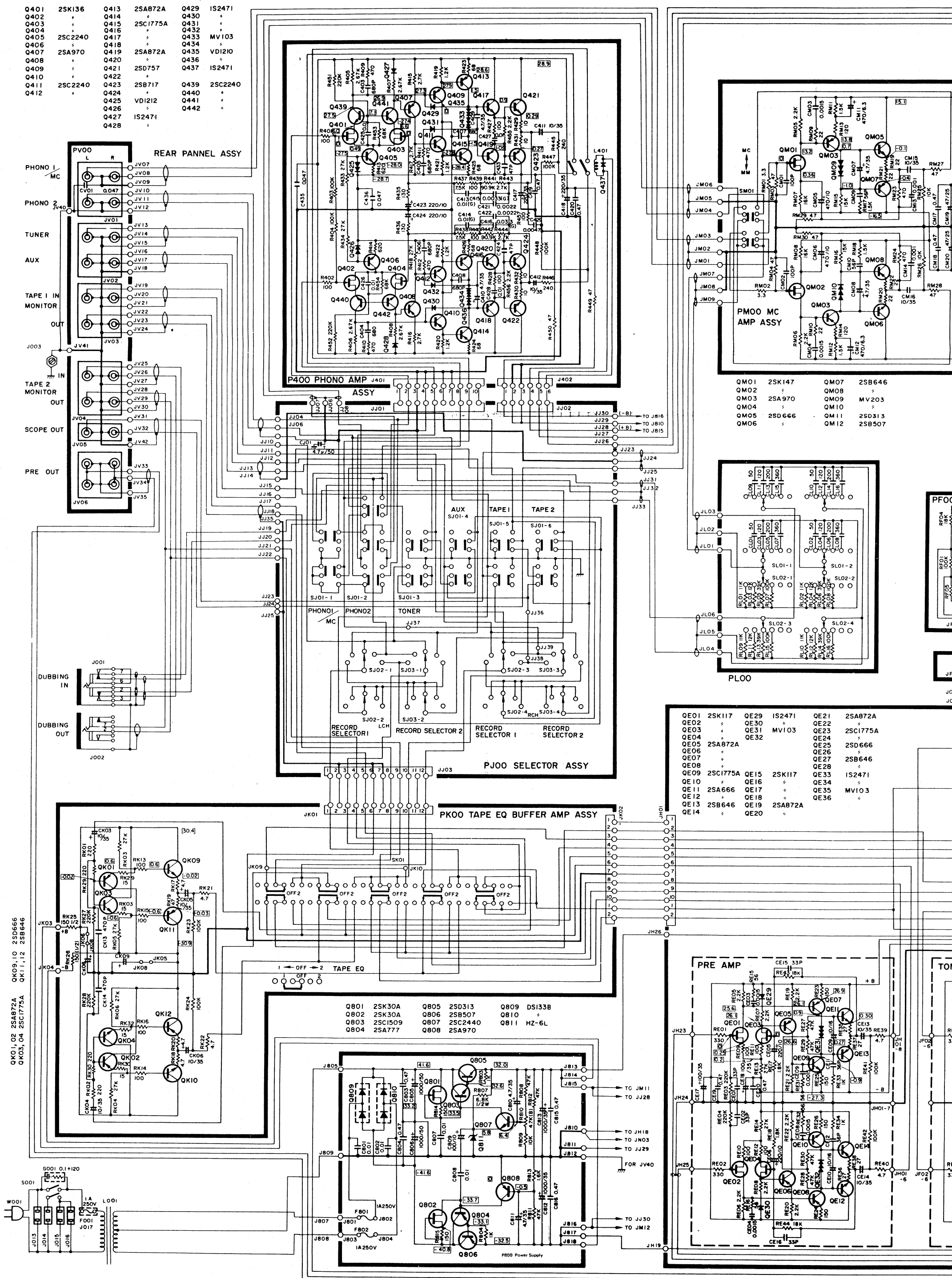
GENERAL

Power Requirements	220 V AC, 50 Hz
(E and N versions are featuring an external voltage selector for use on 110/120/240 V.	
Other versions can be converted by a qualified technician to operate on 110/120/240 V.)	
Power Consumption	29 W
Semiconductor Complement	

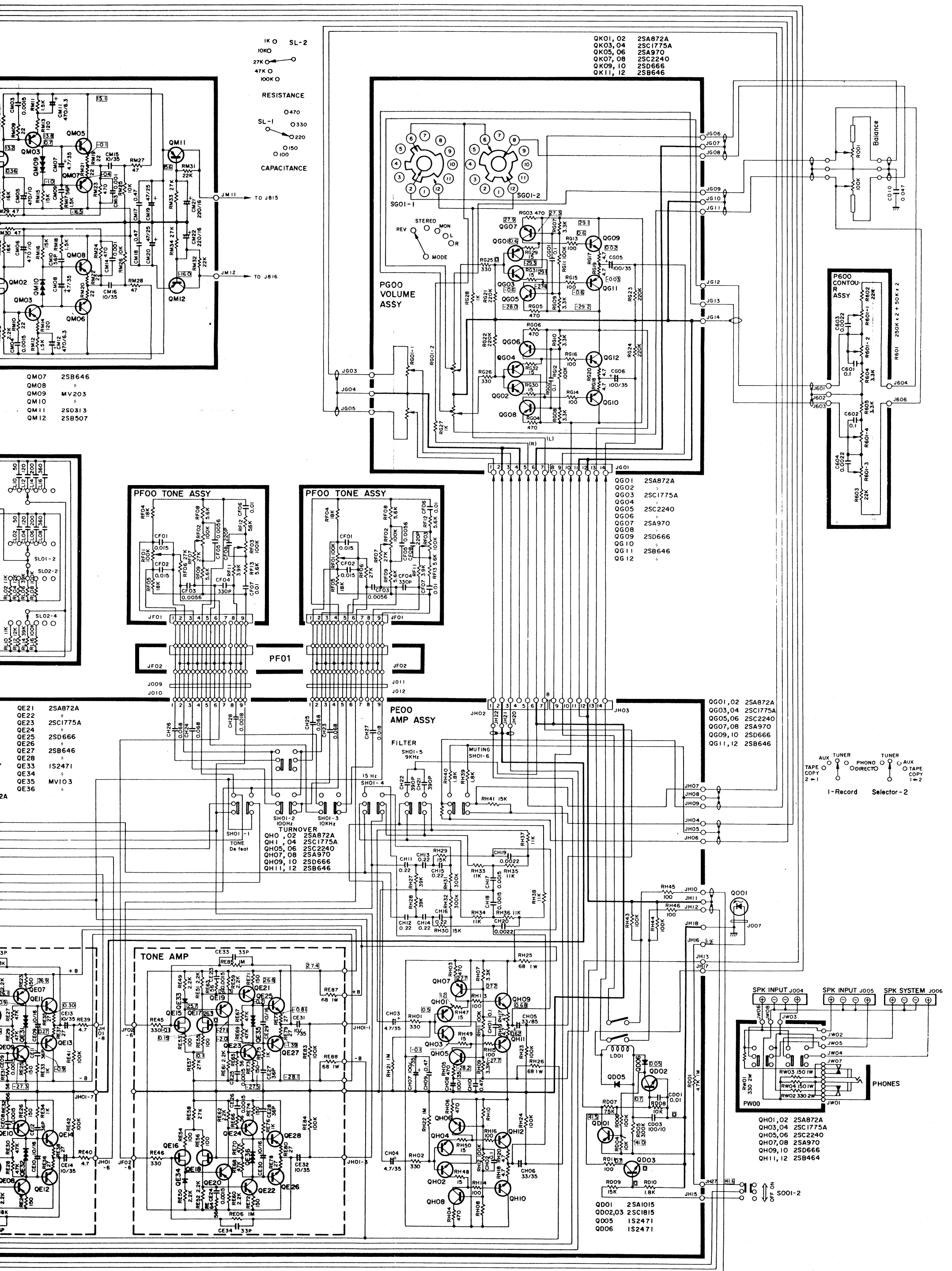


Transistors	97
Diodes	27
Field Effect Transistors	16
Dimensions	
Panel Width	16-3/8" (416 mm)
Panel Height	5-3/4" (146 mm)
Depth	9-9/16" (243 mm)
Weight	
Unit alone	18.7 lbs (8.5 kg)
Packed for shipment	23.1 lbs (10.5 kg)

11. SCHEMATIC DIAGRAM



MODEL 3650





marantz

MARANTZ CO., INC. · P.O. BOX 577 · CHATSWORTH, CALIFORNIA · 91311



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